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Updated Baseline Risk Assessment for the Landfill Operable Unit of the Tonawanda Landfill Vicinity Property Tonawanda, New York

June 2012
Formerly Utilized Sites Remedial Action Program

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Acronyms and Abbreviations

Am-241	Americium-241
ARAR	Applicable or Relevant and Appropriate Requirement
ARSEC	American Remediation Services and Environmental Corporation
BCG	Biota Concentration Guideline
bgs	Below Ground Surface
BRA	Baseline Risk Assessment
CCME	Canadian Council of Ministers of the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm	centimeter
COPC	Constituent of Potential Concern
COPEC	Constituent of Potential Ecological Concern
CSM	Conceptual Site Model
CWQG	Canadian Water Quality Guidelines
DCF	Dose Conversion Factor
DOE	Department of Energy
EML	Environmental Measurements Laboratory
EPA	United States Environmental Protection Agency
EPC	Exposure Point Concentration
EU	Exposure Unit
FGR	Federal Guidance Report
FS	Feasibility Study
FSP	Field Sampling Plan
ft	foot
FUSRAP	Formerly Utilized Sites Remedial Action Program
GIS	Geographic Information System
HQ	Hazard Quotient
IA	Investigative Area
IAEA	International Atomic Energy Association
ICRP	International Commission on Radiological Protection
ILCR	Incremental Lifetime Cancer Risk
in	inch
IRIS	Integrated Risk Information System
kg	kilogram
KPA	Kinetic Phosphorescence Analysis
LANL	Los Alamos National Laboratory
lb	pound
m	meter
mg/L	milligram per liter
µg/L	microgram per liter
mrem/yr	millirem per year
MARLAP	Multi-Agency Radiological Laboratory Analytical Protocols
MCL	Maximum Contaminant Level for drinking water
MED	Manhattan Engineer District
mg/kg-d	milligram per kilogram per day
mGy/d	milliGray per day
mm	millimeter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCRP	National Council on Radiation Protection and Measurements

Acronyms and Abbreviations (cont'd)

NYSDEC	New York State Department of Environmental Conservation
ORNL	Oak Ridge National Laboratory
OU	Operable Unit
pCi/g	picocuries per gram
pCi/L	picocuries per Liter
QA/QC	Quality Assurance and Quality Control
Ra-226	Radium-226
Ra-228	Radium-228
rad/d	rad per day
RAGS	Risk Assessment Guidance for Superfund
RESRAD	Residual Radiation Computer Program
Rfd	Reference Dose
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
ROD	Record of Decision
SARA	Superfund Amendment and Reauthorization Act
SLERA	Screening Level Ecological Risk Assessment
SMDP	Scientific Management Decision Point
SOR	Sum of ratios
Th-228	Thorium-228
Th-230	Thorium-230
Th-232	Thorium-232
TWP	Temporary Well Point
U-234	Uranium-234
U-235	Uranium-235
U-238	Uranium-238
UCL95	95% Upper Confidence Limit
USACE	United States Army Corps of Engineers
USAGC	United States Army Geospatial Center
XRF	X-ray Fluorescence
yd^2	square yard

Executive Summary

The Formerly Utilized Sites Remedial Action Program (FUSRAP) was initiated in 1974 to identify, investigate, and clean up or control sites throughout the United States that were part of the Nation's early atomic energy and weapons program during the 1940s, 1950s and 1960s. Congress transferred management of FUSRAP from the U.S. Department of Energy (DOE) to the U.S. Army Corps of Engineers (USACE) in 1997. When implementing FUSRAP, USACE follows the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The Tonawanda Landfill Vicinity Property, located in Tonawanda, New York, consists of two parcels owned by the Town of Tonawanda; the Town of Tonawanda Landfill (Landfill Operable Unit [OU]) and the Mudflats (Mudflats OU). As a result of a radiological survey performed in 1991 by the DOE, in 1992 the DOE designated the Landfill and Mudflats into FUSRAP together as a vicinity property of the Linde FUSRAP Site.

In 2005 USACE completed a Remedial Investigation of the Landfill and Mudflats OUs, which identified FUSRAP-related material within the Landfill OU, though not to the same levels as found by previous DOE investigations. A Baseline Risk Assessment (BRA) conducted as part of the Remedial Investigation concluded that risks to human health from the FUSRAP-related material, for the current and reasonable future site uses, were within the acceptable limits established in the NCP. This led USACE to issue a Proposed Plan in 2007 recommending that no action was required under FUSRAP for the Landfill and Mudflats OUs. USACE subsequently signed a Record of Decision for the Mudflats OU in 2008, stating that no action was necessary in the Mudflats OU. However, comments by the community and stakeholders on the Proposed Plan expressed concerns that the public could be exposed to potentially impacted environmental media (soil, sediment, surface water and groundwater) in the Landfill OU to a greater extent than that evaluated in the USACE BRA. To address these comments on the Proposed Plan, USACE agreed to not only re-evaluate the site-specific exposure assessment used to support the risk characterization for exposure to FUSRAP-related material, but also to perform further investigations to reduce the uncertainty surrounding the nature and extent of FUSRAP-related radioactivity in the Landfill OU.

Toward that end, from 2009 through 2011 USACE conducted additional sampling of on-site surface and subsurface soils, on-site tree vegetation, on-site groundwater, and on-site and off-site surface water and sediment for the Tonawanda Landfill OU. In addition, USACE performed a site-specific exposure assessment to determine duration and frequency of potential exposure to Landfill OU environmental media by residents living in the neighborhood adjacent to the landfill. The results from the most recent investigations and the updated exposure assessment were used in preparing this updated BRA for the Landfill OU.

The investigations performed by USACE from 2009 through 2011 did indicate the presence of buried FUSRAP-related material in the Landfill OU at concentrations similar to those the DOE found in the early 1990s. USACE also confirmed that uranium in site soils appears to be leaching into groundwater and surface water.

As the FUSRAP-related material is buried, and only intermittent or incidental exposure to Landfill water is assumed, this updated baseline risk assessment concludes that for the current use of this site as it is currently configured, risks to human health from potential exposures to FUSRAP-related material are within the acceptable limits established in the NCP. However, if the surface of the landfill is not maintained and is allowed to erode over time, exposing FUSRAP-related material that is currently buried, then risks to trespassers or other users of the site could increase above the NCP acceptable risk range within the 1,000 year evaluation period.

Therefore, a Feasibility Study (FS) is warranted to evaluate remedial action objectives which would be appropriate to mitigate potential unacceptable risks from exposure to the deeper buried levels of FUSRAP-related material. For human health, radium-226 and thorium-230 in soil are the most significant contributors to risk and dose. If the site will not be managed as a landfill (as is the presumed remedy), then further action to protect on-site aquatic exposures from uranium leaching from the soil source term to ground and surface water may be appropriate. A range of remedial alternatives will be developed and evaluated in the next phase of the CERCLA process for this site.

1. Introduction

The United States Army Corps of Engineers (USACE) performed a supplementary Remedial Investigation (RI) on the Tonawanda Landfill Vicinity Property in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) under the Formerly Utilized Sites Remedial Action Program (FUSRAP) (USACE 2011). FUSRAP was initiated in 1974 to identify, investigate, and clean up or control sites throughout the United States that were part of the Nation's early atomic energy and weapons program.

On October 13, 1997, the Energy and Water Development Appropriations Act (1998) was signed into law as Public Law 105-62. Pursuant to this law, FUSRAP was transferred from the United States Department of Energy (DOE) to USACE. As a result of this transfer, the responsibility for this project was transferred to USACE. The Energy and Water Development Appropriations Act for Fiscal Year 2000, Public Law 106-60, provides authority to USACE to conduct restoration on FUSRAP sites subject to CERCLA, 42 United States Code 9601 et seq., as amended.

1.1. Site Description

The Tonawanda Landfill Vicinity Property is located approximately 1.5 miles north of the Linde (Praxair) FUSRAP Site in the Town of Tonawanda, New York. The site is comprised of two operable units (OUs): the Landfill OU and the Mudflats OU, as shown in Figure 1-1.

The Landfill OU, comprising approximately 55 acres, is located at the northern end of East Park Drive, and is bounded by residential developments to the north and northwest, a railroad line to the east, and an easement owned by National Grid to the south. The Mudflats OU is located on the opposite side (south) of the National Grid easement that borders the Landfill OU. The Mudflats OU is approximately 115 acres in size and is bordered by the National Grid easement to the north, a railroad line to the east, on the west by the former incinerator access road, and to the south by Interstate 290 (Youngmann Expressway). Both OUs are owned by the Town of Tonawanda and are zoned as commercial/industrial. The residential development to the north and northwest of the Landfill OU lies within the City of Tonawanda.

A no-action Record of Decision (ROD) for the Mudflats OU was signed September 30, 2008, after it was determined that risks from FUSRAP-related material in that OU were within the acceptable limits established in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). As such, only the Landfill OU is the subject of this updated baseline risk assessment (BRA).

1.2. History of the Town of Tonawanda Landfill

The municipal landfill was operated by the Town of Tonawanda from the mid-1930s through October 1989. Wastes disposed in the landfill included ash generated by nearby incinerators, construction/demolition debris, and yard refuse (leaves, branches, etc.) collected from Town residents. The landfill occasionally accepted municipal solid waste and wastewater sludge only when the incinerators were temporarily inoperable. The incinerators were demolished in 2002.

In 2007, the Town of Tonawanda began the process of closing the landfill in accordance with the New York State solid waste management facilities regulations (6NYCRR Part 360). Alternative grading material is being imported into the landfill to begin bringing it up to final grade in areas outside of the portion potentially impacted by FUSRAP-related material. In accordance with 6NYCRR Part 360-2.13a1, the minimum horizontal separation between deposited solid waste in the landfill and the property line must be 30 meters (m) (100 feet [ft]). The Town of Tonawanda is preparing an updated Closure Plan Report to reflect changing conditions at the site that have occurred over the past 10 to 15 years. It has yet to submit updated plans to the New York State Department of Environmental Conservation (NYSDEC) as of this time. However, the Town submitted the construction plans for the first 25 acres that the Town plans to close in 2011, which does not include the Landfill OU. These plans are available for review from the NYSDEC.

1.3. Previous Investigations

Several entities including the DOE, USACE, and the NYSDEC conducted investigations into the nature and extent of radioactivity in and adjacent to the Town of Tonawanda Landfill.

1.3.1. DOE Investigations

In 1990, the DOE contracted with the Oak Ridge National Laboratory (ORNL) to conduct a radiological survey of the Landfill OU and adjoining Mudflats to determine if radiological material from the Linde Site might have been disposed in the nearby Town of Tonawanda Landfill (ORNL 1990).

A limited radiological survey was conducted by DOE in September 1991 (ORNL 1992). The survey focused on both the Landfill and Mudflats OUs and consisted of gamma walkover scans, radiation dose rate measurement, and the collection and analysis of systematic and biased soil samples. The results of the survey detected soils in the Landfill and Mudflats OUs with elevated concentrations of radium, thorium, and uranium. Laboratory results indicated some soil samples exhibited characteristics similar to the Manhattan Engineer District (MED) product formerly produced at the Linde facility and others were consistent with the byproducts of the refinery process conducted at the same Linde facility. The Landfill OU and Mudflats were subsequently designated together as a single Vicinity Property of the Linde FUSRAP Site (DOE 1992).

DOE conducted additional soil sampling activities at the Landfill and Mudflats OUs in 1994 to determine the vertical extent of the radiological contamination at the site. Analytical results obtained for subsurface soil, sediment, surface water and groundwater samples indicated that the radiological contamination was mainly limited to the upper 46 centimeters (cm) (1.5 ft) of soil, but was found in lesser concentrations up to depths of 7.5 m (24.5 ft) below ground surface (bgs) (BNI 1995).

Legend

Landfill Operable Unit Boundary

Mudflats Operable Unit Boundary

0 200 400 800 Feet

US Army Corps of Engineers Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

VICINITY PROPERTY OVERVIEW

Document Name: Fig1-1VicinityMap.mxd
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TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 1-1

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1.3.2. USACE Investigations

Upon receiving responsibility for the Tonawanda Landfill Vicinity Property in 1997, USACE began a review of data previously collected at the site. Based on the DOE's scoping data, USACE finished the Radiological Human Health Risk Assessment begun by the DOE for both the Landfill and Mudflats OUs (USACE 1999). Closure scenarios for the Landfill OU addressed during the assessment included capping the contaminated soil in place and excavation and removal of the impacted soil.

Following discussions with the state regulator and other stakeholders, USACE decided that there was not enough data available to make a definitive conclusion on whether action was required at the Tonawanda Landfill Vicinity Property. Therefore, USACE proceeded forward with a RI of the Tonawanda Landfill Vicinity Property. The RI was structured to include both the Landfill OU and the Mudflats OU as separate but related parcels. The OUs were further subdivided into Investigative Areas (IAs) based on previous DOE sampling in order to target areas that were previously identified as having potentially elevated radioactivity. Field sampling of surface and subsurface soil, groundwater, surface water and sediment was conducted by USACE in 2001. Details of sample acquisition numbers and findings are presented in the *Remedial Investigation Report, Tonawanda Landfill Vicinity Property, Tonawanda, New York* (USACE 2005) and are summarized in Section 2, below. Although USACE sampled near the locations that yielded DOE's historical elevated results, USACE was unable to find any elevated radioactivity within the same order of magnitude identified earlier by the DOE. USACE did not attempt to exactly duplicate the historical DOE sampling locations when conducting that RI.

Based on the RI and the results of the BRA conducted as part of the RI, USACE concluded that soils containing uranium, radium and thorium could safely remain in place in their current condition. Therefore a No-Action alternative for both the Landfill and Mudflats Operable Units of the Tonawanda Landfill Vicinity Property was recommended to the public in a Proposed Plan that was released March 26, 2007 (see also Section 1.4.1, below). Following the public comment period on the Proposed Plan, USACE proceeded forward with a No-Action ROD for the Mudflats OU, which was signed on September 30, 2008.

Based on public comments received on the Proposed Plan, and because USACE did not replicate the elevated levels of contamination detected by DOE, USACE conducted additional sampling in the Landfill OU (USACE 2011, see also Section 1.4 below). The results of this additional sampling, a more comprehensive sampling effort than previous investigations of the Landfill OU, are used in this document to assess the risk posed by FUSRAP-related material to human health and the environment.

Subsequent to issuing the Proposed Plan and prior to conducting additional sampling in the Landfill OU, USACE completed a Geographic Information System (GIS)-based Historical Photographic Analysis of the Tonawanda Landfill and Mudflats Area (United States Army Geospatial Center [USAGC] 2009). The results of this historical photographic analysis were used in conjunction with results from previous DOE and USACE investigations in the Landfill OU in planning the supplemental RI sampling.

1.3.3. NYSDEC Investigations

1.3.3.1. Evaluation of Presence of Americium-241

A previous investigation conducted by the Town of Tonawanda in 1988 indicated the presence of a non-FUSRAP radionuclide, americium-241 (Am-241), within the northeastern portion of the Landfill, in areas outside of the FUSRAP area of interest (Figure 1-1). The source of the Am-241 was found to be a nearby former smoke-detector manufacturing facility which used radioactive components and discharged Am-241 contaminated material to the sanitary sewer. The Am-241 ultimately ended up in the wastewater sludge generated at the municipal wastewater treatment plant, which was disposed in the northeast section of the Landfill. This area of the Landfill, identified as containing Am-241, is distinct from the area where FUSRAP-related material was identified. Furthermore, little to no Am-241 was detected in the Landfill OU. FUSRAP authority is limited to addressing FUSRAP-related material and other contaminants co-mingled with FUSRAP-related material, therefore, this BRA will not address Am-241.

In 1989, a New York State Task Force concluded that containment of this radioactive material within the Landfill would be acceptable due to the unique characteristics of the Am-241 (its insolubility, limited exposure pathways, and relative low concentrations). In 2001, the NYSDEC undertook a review of the history and current information regarding the americium contamination to assess whether the 1989 decision would be considered consistent with current regulations and guidance for sites contaminated with radioactive materials (NYSDEC 2005). The re-evaluation concluded that, as long as the americium remains insoluble and food crops are not grown in the contaminated soil, the americium will not present a significant radiation hazard to the public or environment. The 2001 re-evaluation also provided four recommendations for ensuring that the americium remains safely contained in the landfill (NYSDEC 2005). In addition, at that time, NYSDEC provided a letter to USACE which stated (NYSDEC 2005, attachment 3):

> "We believe it is not appropriate to use the 1989 Task Force position on americium in the Town Landfill as a model for evaluating the alternatives for addressing the FUSRAP material currently disposed of at the landfill. This is based on the differences in the material characteristics, such as solubility and mobility in the environment; different program objectives; variation of applicable criteria over time; and availability of more advanced modeling techniques"

1.3.3.2. Evaluation of Potential Migration of FUSRAP-Related Radioactivity

Following the release of USACE's Proposed Plan of no action for FUSRAP-related material in the Landfill OU (USACE 2007a), the City of Tonawanda requested that NYSDEC conduct additional testing to determine the potential for radioactivity to migrate into the neighboring residential properties. NYSDEC conducted two radiological investigations of adjacent properties.

The first investigation involved radiological gamma walkover surveys of several residential properties and the Riverview Elementary School property in the vicinity of the Landfill OU (NYSDEC 2007). In those properties that border the Landfill OU, the area within approximately 6 m (20 ft) of the boundary was surveyed using a 5 cm x 5 cm (2 inch [in] x 2 in) sodium iodide

detector. One nearby property that does not border the Landfill OU was also surveyed, as well as all of the Riverview Elementary School property. No gamma walkover survey results from any of the residential properties exceeded the investigative level set by the NYSDEC of 2,000 counts per minute above the average background for the area (11,200 counts per minute). However, on the Riverview Elementary School grounds, the investigative level was exceeded, and confirmed with one minute static counts, in two locations. Soil samples were then collected from each of these areas and sent to a NYSDEC-approved laboratory for analysis. The soil samples contained naturally occurring levels of radioactivity and did not exhibit characteristics of FUSRAP-related material. As stated by NYSDEC, "The analytical results for these samples indicate that the soil contains naturally occurring radioactive material, in normal concentrations, and cesium-137, which is a residue from the radioactive fallout from atmospheric testing of nuclear weapons in the past. There is no indication of radiological contamination. These results are consistent with the readings obtained. They illustrate the fact that the investigative level used in this survey was very conservative." The survey concluded that there was no evidence of radioactive wastes from uranium ore processing in the areas surveyed (NYSDEC 2007).

The second investigation involved the sampling and analysis of sump water from basements of representative residential properties adjacent to the Landfill OU (NYSDEC 2008). Ten residential properties in locations ranging from the far western end of Wadsworth Court to the eastern end of Hackett Drive were sampled. In addition, two homes located several blocks to the north were sampled as "background" or "control" locations. Samples were collected from the sumps in mid-March 2008, when snow cover was melting, and analyzed in a laboratory for both chemical and radiological parameters. The results of this sump sampling program indicate that contaminants from the Landfill OU are not entering the sumps of homes immediately bordering the Landfill OU.

1.3.3.3. Sampling of Landfill Groundwater Monitoring Wells

The Town of Tonawanda installed 17 permanent groundwater monitoring wells in and around the landfill between 1983 and 1999. These are monitored selectively for chemical and radiologic constituents in order to identify contaminant movement or release to the environment. NYSDEC sampled most shallow wells and a few deep wells in September 2001, October 2007, October/November 2008, and April 2009 and analyzed them for radium, thorium, and uranium isotopes. That data is presented along with data obtained by USACE sampling of these wells in Section 2.3 so that overall trends in radionuclide concentrations in these wells may be observed (see also Figure 2-3). The results indicate that shallow groundwater in the landfill is impacted by uranium near the soil area impacted by FUSRAP-related material (the Landfill OU) at levels above drinking water standards. Groundwater at the landfill and in the residential area adjacent to the landfill is not used for drinking water purposes and the groundwater results do not indicate that uranium is migrating to deeper groundwater resources or residential homes (via sump pump sampling). Only a single well (L-3) exhibited a concentration above the drinking water standard in 2001. The uranium concentrations measured in this well during two sampling events in 2009 were below the maximum contaminant level (MCL).

1.4. USACE 2007 Proposed Plan

On March 26, 2007, USACE released the Tonawanda Landfill Proposed Plan which recommended no action for the FUSRAP-related material (radium, thorium and uranium) found

at the site (USACE 2007a). USACE held a public meeting to present this Proposed Plan on Wednesday, April 25, 2007, at the City of Tonawanda High School Auditorium on Hinds Street (USACE 2007b). An extended public comment period of 203 days was provided due to significant public interest.

1.4.1. Overview of the Proposed Plan

USACE conducted a RI and a BRA of the Tonawanda Landfill Vicinity Property beginning in 2001 (USACE 2005). Based on the results of this RI and BRA, USACE determined that risks posed by FUSRAP-related material at the Tonawanda Landfill Vicinity Property did not exceed the threshold established in the NCP found at 40 Code of Federal Regulations (CFR) Part 300 (USACE 2007a). The subsequent Proposed Plan indicated that no action was required to remediate FUSRAP-related material.

1.4.2. Summary of Major Comments Received on the Proposed Plan

During the public meeting that was held on April 25, 2007, nineteen speakers came forward to present comments on the Proposed Plan (USACE 2007b). In addition, written comments were received from local, state, and Federal stakeholders, nearby residents and members of the Riverview Elementary School community, as well as New York State environmental and health agencies. All of the comments opposed the no action plan proposed by USACE for the Landfill OU.

Many of the comments argued that because of the close proximity of the school and the residential development to the Landfill OU that the exposure parameters used in the recreational/trespasser land-use scenario evaluated in the risk assessment underestimated the actual potential exposures to adults and children traversing the landfill. Specific comments were submitted by various stakeholders (neighbors, school representatives, elected officials, and state environmental and health agencies) indicating that the input parameter values used in the 2005 BRA for both the exposure frequency and the exposure duration could reasonably be increased, based on population dynamics of the neighboring community. It was shown by the community that people reside longer in the adjacent neighborhood and may spend more time on landfill property than previously assumed.

The NYSDEC indicated that the closure plan for the Town of Tonawanda Landfill had recently identified a regulatory requirement for property setback distances; a minimum of 30 m (100 ft) must be maintained between deposited solid waste and the property line (6NYCRR 360-2.1.3(a)). As stated in one of the NYSDEC comments on the 2007 Proposed Plan,

> "10. The closure plan for the Town of Tonawanda is in the conceptual stage at this time. The requirements of 6 NYCRR Part 360 will govern the final design for the landfill closure project. These regulations specify the design of the landfill final cover systems components, leachate and gas collection and handling systems, construction QA/QC criteria among other requirements. Of particular concern regarding the proposal by the Corps to leave all of the MED waste material in place in the landfill are the regulatory requirements for property setback distances.

Part 360-2.13 (a) (1) specifies that a minimum horizontal separation distance of 100 feet be maintained between deposited solid waste and the property line. Previous investigations at the landfill have identified areas along the northern boundary where waste materials are known to exist in very close proximity to, and in some locations up to the north property line. In general, 360-2.13(a)(1) will be used as guidance to determine where the edge of the solid waste will be allowed to remain in the northern area of the landfill, along the fence line bordering the residences along Hackett Drive. Therefore, all waste buried in this area will need to be excavated to a minimum distance of 100 feet south of the property line. Excavated materials will be placed within the landfill footprint to be covered by the final cap. This setback distance will also allow for the construction of a surface water perimeter drainage ditch to control runoff from the closed landfill.

In order to facilitate this requirement and to allow for the Town to plan for the landfill closure, the Department requested that the Town's consultant prepare an updated conceptual fill plan. This plan identifies the proposed lateral limits and elevation grades for the final configuration of the landfill. The conceptual fill plan was submitted to the Department on, May 10, 2007. The plan specifically avoids the placement of waste fill in the designated FUSRAP area of the landfill. Additionally, an area of shallow buried wastes which extends to the east from the FUSRAP area is identified for waste removal and relocation. The plan as developed provides for a waste free, buffer area varying from 100 feet to approximately 200 feet along the north/northwest area of the landfill property. Thus, most, if not all of the MED wastes in Areas A and B of the landfill will need to be removed.

Excavation of buried wastes within this buffer zone will be required for proper closure of the landfill. Additional waste may need to be excavated to construct the perimeter leachate collection and conveyance pipelines. This will be further determined during the final design of the landfill closure project. All excavated waste, including MED materials located in the identified FUSRAP area, will need to be relocated either into the Tonawanda landfill footprint or to an approved offsite disposal facility, depending on the concentration of radioactive materials in the excavated material.

This information was not available at the time the Baseline Risk Assessment was performed. The construction scenario evaluated in the Remedial Investigation Report is described as on page 6-20, as follows:

> ‘Landfill closure calls for placement of a geotextile membrane over the waste, covering the membrane with an 18 inch clay barrier layer (Component 1), placing a 12 inch gravel barrier protection layer over that, (Component 2), then covering with 6 inches of topsoil to support vegetation (Component 3).’

This does not accurately describe the landfill closure operations and is not consistent with the applicable regulatory requirements for landfill closure. Therefore, an addendum to the Remedial Investigation Report is needed, to analyze the correct landfill closure scenario. That analysis must then be taken into account in a revised Proposed Remedial Action Plan."

1.4.3. USACE Review of Comments

The comments received on the Proposed Plan indicated that further evaluation of the following two items was appropriate.

1.4.3.1. Re-evaluation of Exposure Assessment for Current and Future Land Use

As mentioned in Section 1.4.2, specific comments were received from several different stakeholders indicating that the exposure frequency (hours per day or hours per week traversing the landfill) and also the exposure duration (years exposed) values used in the risk assessment underestimated actual or potential exposures of the neighboring community. Although the United States Environmental Protection Agency (EPA)-recommended values for these two parameters had been used, more site-specific values can be used to support decision-making for the Landfill OU, as is appropriate following EPA guidance (EPA 1989).

The exposure frequency used in the risk assessment that formed the basis for the no action Proposed Plan used values of 15 minutes per day for 5 days per week and 23 minutes per day for 2 days per week, or about 2 hours per week total (USACE 2005). These recreational user/trespasser values were obtained from the EPA's recommended source of exposure factor values but represented average outdoor activities time for an adult (EPA 1997a). As such, they may be more representative of a central tendency exposure, rather than a reasonable maximum exposure (RME). As explained in Section 3.3.4.1, youth or children from the nearby community could reasonably be expected to spend more time on the Landfill OU. A review of other information presented in EPA's newer recommended exposure factor values specifically for children indicated that two hours per day could be considered a RME value for outdoor exposure frequency for that age group (EPA 2002a).

In addition, in commenting on the Proposed Plan, several residents indicated that they had lived in their homes neighboring the Landfill OU since the 1960s or even earlier. This led to a re-evaluation of the value used for exposure duration in the risk assessment that formed the basis for the Proposed Plan. That value (30 years) was obtained from EPA guidance (EPA 1997a) and was the upper 95th percentile of a survey of home-owners as reported in a 1993 US Census. Subsequent to receiving the comments from nearby residents, a survey of housing titles was performed using an on-line GIS database maintained by Erie County, New York (http://gis1.erie.gov/GC/ErieCountyNY/default.htm). This indicated that most of the homes in the community surrounding the Landfill OU were still occupied by the residents who built their homes in that development in the 1950s and 1960s. In fact, the upper 90th percentile of time spent in a residence in the community of 300 homes neighboring the Landfill OU was 42 years.

This information will be used in Section 3.3.4.1 to re-quantify potential RMEs and consequent risks to trespassers on the Landfill OU.

1.4.3.2. Re-evaluation of Source Term Used in USACE 2005 BRA

As presented in Table 1-1 of this report and mentioned in Section 1.3.2 above, despite the proximity of USACE's samples to the locations that yielded DOE's historical elevated results, USACE was unable to find any elevated radioactivity within the same order of magnitude identified earlier by the DOE. This discrepancy between DOE and USACE data was recognized during the early review of the contractor's draft RI report and BRA by USACE. However, there was no evidence of soil movement in the Landfill OU to substantiate complete exclusion of DOE data from the USACE risk assessment, which was used to support the subsequent Proposed Plan. In general, USACE relies on its own, more recent investigation results in performing BRAs, but in the case of the Landfill OU 2005 risk assessment, much of the DOE data was included in defining the source term.

Potential reasons for this discrepancy between DOE and USACE 2001 data (see USACE 2005 for explanation of 2001 IAs and sampling rationale) include the use of different sampling and analytical techniques, migration of radionuclides in soils, surface water, and groundwater, the localized nature of contamination (USACE sampling may have bounded it rather than identified the middle of it), or USACE reliance on field screening to find locations to take biased samples rather than obtaining a greater number of systematic samples. This final point is supported by comparing Tables 12-4 and 12-5 in the 2011 sampling report which present results from IA1 (USACE 2011). The highest activity found among systematic samples in IA1 is four to five times greater than the highest activity found among biased samples in the same IA. In the 2001 investigation, USACE did not have a contingency in place to obtain a robust number of samples in suspected areas of elevated activity when the field screening did not detect elevated gamma readings at the ground surface. In some IAs where elevated activity was suspected, only two or three borings were placed (instead of a potential 10 – 20) because the field screening did not indicate a concern. USACE also did not attempt to exactly duplicate the sampling locations where DOE had previously found elevated radionuclide concentrations. It should be noted that the analytical method used by DOE for measuring thorium-230 (Th-230) activity was not able to detect low level thorium concentrations, although it did detect very high concentrations of Th-230. USACE had used a more sensitive analytical method for measuring Th-230 in 2001 and also in 2010.

Table 1-1 of this report also includes a summary of the extent of sampling most recently conducted by USACE in the Landfill OU. The most recent sampling provides a more comprehensive number of samples than that obtained by USACE in 2001. In addition, more samples were collected to confirm DOE findings and were closer in magnitude to those findings.

Table 1-1
Comparison of FUSRAP Sampling Efforts in the Landfill Operable Unit

Matrix	DOE Date 1991 and 1994		USACE Data 2001		USACE Data 2009 and 2010	
	Number of Samples	**Maximum Results**	**Number of Samples**	**Maximum Results**	**Number of Samples**	**Maximum Results**
Soil (Results in pCi/g)	148 Samples 92 Locations	Ra-226: 2,000 Th-230: 4,300 U-238: 1,800	280 Samples 114 Locations	Ra-226: 20.1 Th-230: 32.5 U-238: 227	962 Samples 193 Locations	Ra-226: 3,485 Th-230: 1,640 U-238: 2,048
Surface Water (Results in pCi/L)	1 Sample	Ra-226: 521 Th-230: 0.2 U-238: 48.2	4 Samples	Ra-226: 7.2 Th-230: 4.34 U-238: 211	11 Samples 10 Locations	Ra-226: 2.4 Th-230: 0.3 U-238: 61.9
Sediment (Results in pCi/g)	1 Sample	Ra-226: 65.7 Th-230: 121.8 U-238: 393.5	9 Samples 4 Locations	Ra-226: 5.8 Th-230: 3.9 U-238: 25.3	12 Samples 11 Locations	Ra-226: 1.6 Th-230: 2.2 U-238: 14.1
Groundwater (Results in pCi/L)	2 Boreholes (Unfiltered)	Ra-226: 12.1 Th-230: 693 U-238: 4,328	10 Permanent Wells (Filtered)	Ra-226: 1.0 Th-230: 0.7 U-238: 53.7	14 Temporary Well Points (Filtered) 12 Permanent Wells (Filtered) 4 Tree Root Zone (Unfiltered)	Ra-226: 11.8 Th-230: 0.4 U-238: 51.8 Ra-226: 1.7 Th-230: 0.32 U-238: 11.9 Ra-226: 11.8 Th-230: 44.5 U-238: 163

1.4.4. USACE Path Forward in Response to Comments

The previous risk characterization used to support the Proposed Plan resulted in an incremental lifetime cancer risk (ILCR) right at the upper end of the acceptable risk range ($1x10^{-4}$) established in the NCP (EPA 1990). Using more site-specific values for the exposure frequency and the exposure duration could increase the resulting ILCR above the acceptable risk range. This increase in cancer risk above the acceptable risk range would only occur if the DOE data were used in developing the source term (or exposure point concentration [EPC], see Section 3.4.1). If instead, only the USACE 2001 sampling results were used to define the source term, then the cancer risks would still be within the acceptable risk range due to the much lower radioactivity identified by USACE. Because the radioactive contamination that the DOE reported was not verified by the USACE sampling in 2001, there was an uncertainty regarding the true magnitude of the source term. Therefore, USACE determined that further sampling was needed in order to confirm the extent of radioactive contamination at the Landfill OU. The general response to public comments received on the Proposed Plan was to re-investigate the extent of FUSRAP-related material in the Landfill OU. As presented in Section 1.4.3.2, USACE 2010 sampling confirms previous DOE sampling and is more comprehensive than earlier sampling; therefore, only the latest data set from the 2010 sampling will be used in this updated evaluation of risks at the Landfill OU. This baseline risk assessment also reflects the realistic potential for human exposure in the landfill, given the proximity of the residences.

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2. Data Collection and Evaluation

The most recent USACE sampling of the Landfill OU media occurred via three separate efforts. The first effort was led by USACE personnel who sampled sediment, surface water, existing groundwater wells, and vegetation in the summer and fall of 2009. That sampling and the results are described below. The second was conducted to further investigate soil, sediment, and groundwater sampling as part of the Phase 2 RI sampling in 2010. That sampling effort is summarized below and described in further detail in a separate report (USACE 2011). Finally, USACE collected surface and sediment samples off-site in November 2011, which is described below in Sections 2.1.3 and 2.2.2. Figure 2-1 presents the location of all environmental media samples obtained by USACE in the 2009/2010/2011 investigations of the Landfill OU.

2.1. Sediment Sampling

Sediment samples were obtained from on-site drainage ditch areas by USACE in 2009 and 2010. Additional sediment samples were obtained from the areas of the drainage ditch as it leads off-site onto the National Grid right-of-way in November 2011.

2.1.1. 2009 Sediment Sampling

Sediment samples were collected from ten different locations from the existing drainage ditch between July 27 and 31, 2009. These locations are presented on Figure 2-2 (location 03 was not sampled).

Procedures for sediment sampling were completed in accordance with EM 200-1-3 C.5, Sediment Sampling (USACE 2001). Specifically, sediment samples were collected using stainless steel instruments at a depth of 15 cm (6 in). At each location, sediment was transferred into a stainless steel bowl, characterized, and homogenized with a stainless steel trowel prior to placement in the appropriate containers. Samples were capped and placed in appropriately labeled and prepared coolers.

Sediment samples were analyzed at the offsite laboratory (Eberline Analytical - Oak Ridge, TN) by alpha spectroscopy via Environmental Measurements Laboratory (EML) methodologies (uranium and thorium constituents of potential concern [COPCs]), and Los Alamos National Laboratory (LANL) gamma spectroscopy method (radium-226 [Ra-226] and radium-228 [Ra-228]). Sampling equipment was decontaminated in accordance with the Field Sampling Plan (FSP) (USACE 2009) and required Quality Assurance and Quality Control (QA/QC) samples were collected as applicable.

Sediment sample results are summarized in Table 2-1. Radium and thorium were measured at or near background concentrations in all of these sediment samples. Uranium concentrations, however, were elevated compared to background in sediment sampling locations 01, 02, and 05, with slightly lower concentrations at location 08.

2.1.2. 2010 Ditch Sampling

Additional soil samples were collected from the existing drainage ditch during the 2010 data collection effort. The sample locations and the analytical results are summarized in the Phase 2 RI Sampling Report, in Figure 6-4 and Table 12-18, respectively (USACE 2011). All of these ditch samples will be combined with other surface soil samples for development of EPCs for soil exposure units (EUs). The highest detection of Ra-226 in these samples was 8.23 picocuries per gram (pCi/g) found in sample IA3-D12. This sample only had 2.35 pCi/g Th-230 and 4.12 pCi/g uranium-238 (U-238) in it. The samples obtained above and below this interval, at the same location, had much lower radionuclide concentrations which were comparable to background levels. Sample IA3-D12 is located near USACE 2009 sediment sample 05, which was determined to contain elevated concentrations of uranium at the surface.

2.1.3. 2011 Off-site Ditch Sampling

The downgradient, off-site areas of this drainage ditch were sampled in November 2011. This sediment sampling was performed to further delineate the extent of dissolved surface water uranium concentrations as the ditch moves off-site, converges with the drainage from the National Grid right-of-way south of the landfill, and eventually discharges to Two Mile Creek. These sampling locations are presented in Figure 2-2 and results are summarized in Table 2-1. The greatest detection of any radionuclide in the surface sediment in this downgradient portion of the ditch is below its respective surface soil background screening value (Table 2-7), indicating that radioactivity is not currently being conveyed to ditch sediments off-site.

2.2. Surface Water Sampling

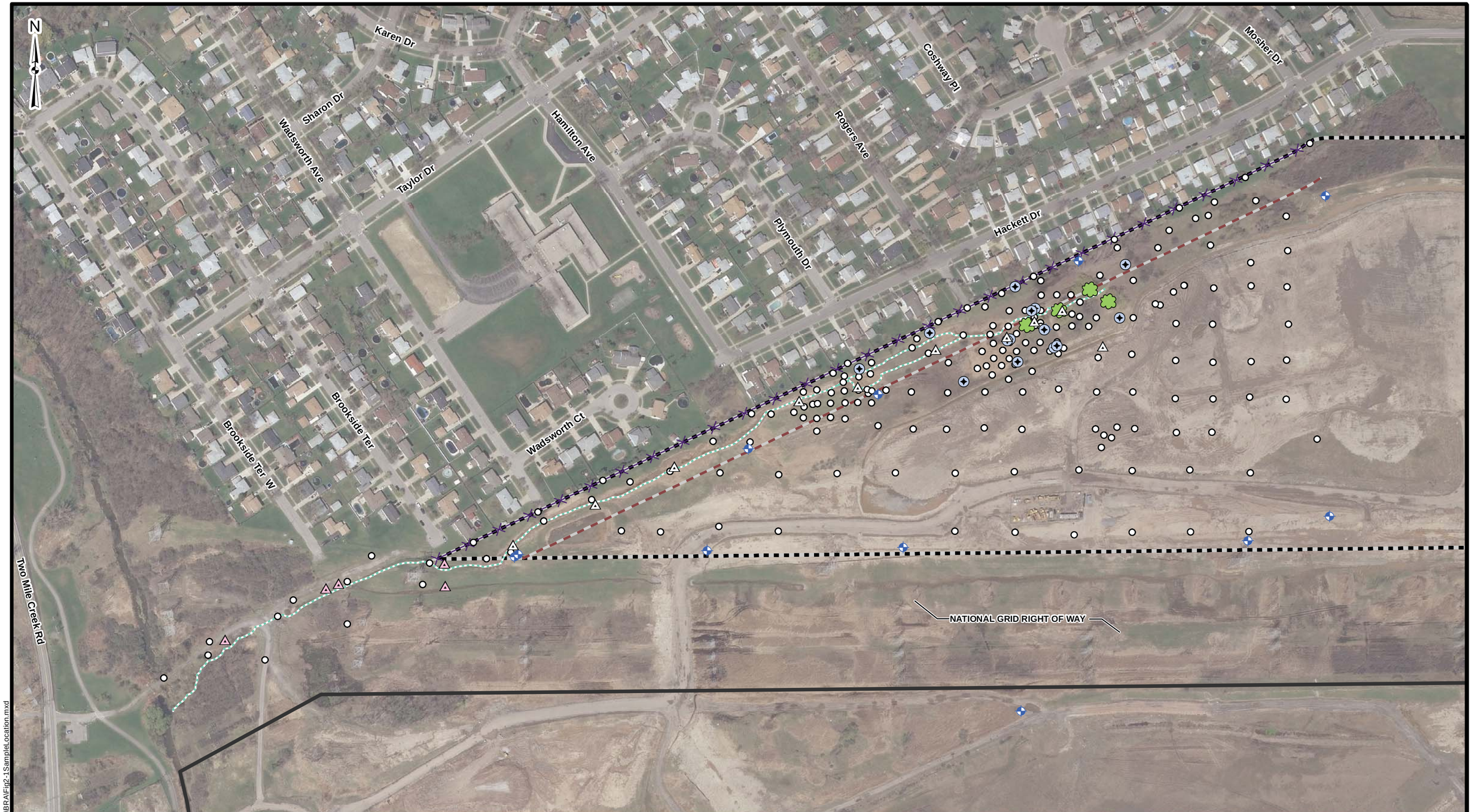
One round of on-site surface water sampling was conducted by the USACE in 2009. A second round of surface water sampling was conducted further downstream (off-site) in 2011. Both sampling events are described below.

2.2.1. 2009 Surface Water Sampling

Surface water samples (unfiltered) were collected from the existing drainage ditch at the same ten locations from which sediment samples were obtained from July 27, 2009, to July 31, 2009. These locations are presented on Figure 2-2.

Procedures for surface water sampling were completed in accordance with EM 200-1-3C.3, Surface Water Sampling, C.3.4.3 (USACE 2001). USACE sampled the surface water using dedicated tubing connected to a peristaltic pump to reduce turbidity commonly caused by manually dipping bottles into the ditch. Samples were sealed, stored and shipped to a laboratory in appropriately labeled and prepared coolers.

Surface water samples were analyzed at the offsite laboratory (Eberline Analytical - Oak Ridge, TN) by alpha spectroscopy via EML methodologies (uranium and thorium COPCs), and EPA method 903.1/904.0 (Ra-226 and -228). Sampling equipment was decontaminated in accordance with the FSP and required QA/QC samples were collected as applicable.



Legend

- 2010 Soil Sample
- 2009 Sampled Monitoring Wells
- 2010 Temporary Well Locations
- Willow Tree Sample Location
- 2011 Surface Water/Sediment Sample
- 2009 Surface Water/Sediment Sample
- Landfill Operable Unit Boundary
- Mudflats Operable Unit Boundary
- Fenceline
- 100ft Boundary Offset
- Northern Drainage Ditch

0 125 250 500 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

2009 THROUGH 2011 SAMPLE LOCATIONS

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TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 2-1

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Legend

- 2009 Sampled Monitoring Wells
- 2010 Temporary Well Locations
- 2011 Surface Water/Sediment Sample
- 2009 Surface Water/Sediment Sample
- Landfill Operable Unit Boundary
- Mudflats Operable Unit Boundary
- Fenceline
- Northern Drainage Ditch

0 125 250 500 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

2009 THROUGH 2011 SURFACE WATER, SEDIMENT AND GROUNDWATER SAMPLE LOCATIONS

Document Name: Fig2-2WGWSSamples.mxd
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Time Saved: 8:16:40 AM

TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 2-2

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Table 2-1
Results of 2009 and 2011 USACE Sediment Sampling

	Constituent																	
	Ra-226		Ra-228		Th-228		Th-230		Th-232		U-234		U-235		U-238		Total U	
Sample ID	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (μg/g)	Flag
SED-01	1.332		0.8698		1.051		2.243		1.019		7.314		0.6152		7.918		15.5685	
SED-02	1.491		0.8895		0.6427		0.4853	J	0.4746		10.43		1.107		11.27		13.3242	
SED-04	1.162		1.332		0.8225		0.7844	J	0.8396		0.5738		0.07409		0.6314		1.4913	
SED-05	1.272		1.59		0.7099		1.081	J	0.5145		15.27		1.387		14.11		44.4255	
SED-06	1.111		1.201		0.5884		0.5137	J	0.4849		1.539		0.1421		1.525		3.8680	
SED-07	0.6703		0.9673		0.8231		1.143		0.7866		2.308		0.2539		2.327		4.1810	
SED-08	1.185		1.129		0.981		1.02	J	0.8628		4.753		0.329		4.426		9.6962	
SED-08D	1.611		1.821		0.9181		0.8376	J	0.695		3.888		0.3761		3.703		9.6048	
SED-09	1.194		1.363		0.6252		0.9406	J	0.5926		1.201		0.04905	U	0.9948		2.3139	
SED-10	1.44		1.44		1.018		0.7122	J	0.7485		0.9546		0.05927	U	1.071		2.0642	
SED-11	1.112		1.261		0.8764		0.8979	J	0.6657		0.8336		0.1197		0.955		3.7813	
SW-12	1.32		1.27		1.35		1.28	J	0.845		0.776		0.028	U	0.741		**NA**	
SW-13	1.2		1.29		1.07	J	1.14		0.837		0.659		0.051		0.747		**NA**	
SW-14	1.2		1.5		1.32		1.11		0.98		0.896		0.068		0.884		**NA**	
SW-15	1.15		1.17		0.956	J	0.907	J	0.861		0.665		0.059		0.829		**NA**	
SW-16	1.17		1.09		1.15	J	1.07		0.808		0.974		0.046	U	1.01		**NA**	

Qualified Flags:
J: Estimated
U: Non-detect
NA: Not analyzed

Surface water sample results are summarized in Table 2-2. Radium isotopes were measured at or near background concentrations in most of these surface water samples. The highest detection of Ra-226 was measured in sample location 04, with a result of 2.4 picocuries per liter (pCi/L). All but three of the thorium results were below detection limits, with the greatest result above detection limits being 0.32 pCi/L at USACE location 11. Uranium concentrations, however, were higher than what would be expected from non-impacted surface water in all sampling locations except for SW04. Surface water sampling locations 01, 02, and 05 (USACE samples) had the greatest concentrations of uranium (over 100 pCi/L or over 150 μg/L total uranium). These are the same locations that had elevated sediment concentrations of uranium. The uranium concentrations in surface water remained elevated as samples were obtained downgradient at location 06, and then dropped to near background concentrations in further downstream locations 07, 08, 09, 10, and 11.

The USACE sampling event verified that surface water discharge along the east to west flowing drainage ditch originates as groundwater impacted by FUSRAP-related material from the Landfill OU.

2.2.2. 2011 Off-site Surface Water Sampling

To further delineate and examine the extent of dissolved surface water uranium concentrations and how they might be influencing the main drainage ditch as it moves off-site, five samples were taken downgradient in November 2011. This ditch converges with the drainage from the National Grid right-of-way south of the landfill, and eventually discharges to Two Mile Creek. The off-site sampling locations are presented in Figure 2-2 and results are summarized in Table 2-2. None of the surface water sampling locations exhibited radioactivity above 1 pCi/L (i.e., comparable to naturally occurring concentrations of radionuclides) except for sampling location SW-13. This location is just outside the boundary of the landfill, on Niagara Grid property. At this sampling location, although the radium and thorium isotopic results are all below 1 pCi/L, the total uranium concentration is 12.5 pCi/L (18.7 μg/L) in the unfiltered sample and 13.2 pCi/L (18.9 μg/L) in the filtered sample. This concentration of uranium drops to 0.2 pCi/L (0.3 μg/L) in the next downstream sampling location (SW-14), which was obtained just after this ditch merges with the National Grid drainage ditch.

2.3. Groundwater Sampling

USACE has collected groundwater samples from a sub-set of the Town of Tonawanda's 17 permanent groundwater monitoring wells installed in the landfill, as well as from temporary well points (TWPs) installed in the Landfill OU.

2.3.1. 2009 Sampling of Existing Groundwater Monitoring Wells

Groundwater samples (filtered and unfiltered) were collected from 12 existing groundwater monitoring wells from July 27, 2009, to July 31, 2009. The location of these wells is presented in Figure 2-2.

Table 2-2
Results of 2009 and 2011 USACE Surface Water Sampling

	Constituent																	
	Ra-226		Ra-228		Th-228		Th-230		Th-232		U-233/234		U-235/236		U-238		Total U	
Sample ID	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (µg/L)	Flag
SW/SD-01	0.60819		1.02599		0.04699	U	0.08891	U	0.02339	U	57.8		4.736		56.88		144.374	
SW/SD-02	0.34222	U	0.414	U	0.01433	U	0.3109		-0.0256	U	19.87		1.491		19.58		44.3183	
SW/SD-04	2.44665		0.38511	U	0.04701	U	0.1726		0.02148	U	0.6099		0.1966	U	0.6168		1.12395	
SW/SD-05	1.50822		1.00804	U	-0.0363	U	0.1637	U	-0.0239	U	61.36		6.441		61.91		162.291	
SW/SD-06	0.43553		0.68893	U	0.01898	U	0.1037	U	0.05656	U	27.57		1.864		28.47		76.0859	
SW/SD-07	1.21331		0.43418	U	0.1724	U	0.05788	U	0.03525	U	6.491		0.9891		5.559		23.4253	
SW/SD-08	0.60272		0.80675		0.04562	U	0.1699	U	-0.0205	U	5.925		0.5647	U	5.525		19.3179	
SW/SD-09	0.36336		0.12881	U	-0.0281	U	0.07218	U	0.03575	U	7.296		0.2891		6.228		107.562	
SW/SD-10	1.90281		0.53644	U	0.02121	U	0.1574	U	0.09541	U	7.978		0.2685	U	8.017		49.1686	
SW/SD-11	0.74124		-0.2438	U	0.00357	U	0.325		0.06249	U	5.442		0.4854		4.702		19.1882	
SW-12	0.177	U	0.378	U	0.27	J	0.118	R	0.064	R	0.195	J	0.033	U	0.068	U	0.289	
SW-13	-0.089	U	-0.152	U	0.248	J	0.107	R	0.081	U	6.29		0.112	U	6.05		18.7	
SW-14	0.147	U	0.41	R	0.143	R	0.074	U	0.037	U	0.089	U	0	U	0.096	U	0.292	
SW-15	-0.044	U	0.89	J	0.261	J	0.069	U	0.02	U	0.261		0.067	U	0.231		0.905	
SW-16	0.198	U	0.514	R	0.359	J	0.027	U	0.009	U	0.247	J	0.059	U	0.239		0.634	

Qualified Flags:
J: Estimated
U: Non-detect
R: Rejected

Collection of groundwater samples from monitoring wells involved well purging, measurement and stabilization of field parameters during purging, and groundwater sample collection. Groundwater sampling activities followed the requirements of the EM 200-1-3 C.2 Groundwater sampling, C.2.4.7 Peristaltic pump (USACE 2001). Further details are presented in Appendix B.

Groundwater samples were analyzed at the offsite laboratory (Eberline Analytical- Oak Ridge, TN) by alpha spectroscopy via EML methodologies (uranium and thorium COPCs) and EPA method 903.0/904 (Ra-226 and -228). The results of this most recent sampling of these permanent wells are presented in Table 2-3. Of the 12 permanent wells sampled in 2009, well DW-1 had the highest Ra-226 activity concentration at 1.9 pCi/L; BM-17 had the highest Th-230 activity concentration of 0.35 pCi/L; and BM-18 had the greatest concentration of total uranium at 35.4 μg/L. Previous rounds of sampling from these wells are presented in Figure 2-3 and discussed in Section 1.3.3.3. A further interpretation of contaminant fate and transport in the Landfill groundwater is provided in Section 2.3.2.

2.3.2. 2010 Sampling of Temporary Well Points

Fourteen TWPs were installed in and around IA1 and IA3 as part of the 2010 Phase 2 RI sampling, as shown in Figure 2-2 of this report and Figure 6-5 of the Phase 2 RI Sampling Report (USACE 2011). Results from this sampling are summarized in Table 12-38 of the Phase 2 RI Sampling Report (USACE 2011). Three of the TWPs produced no water for sampling (TWP-10, 12, 14). Of the 11 producing TWPs, TWP-2 had the highest Ra-226 activity concentration at 11.8 pCi/L, TWP-7 and TWP-11 had the greatest concentrations of total uranium (over 90 pCi/L), and TWP-3 had the highest Th-230 activity value of 0.2 pCi/L.

The hydraulic heads (groundwater levels) and dissolved uranium concentrations in groundwater along the northern edge of the landfill show that the fill boundary with the natural lake-clay fence line promotes an upward groundwater flow through the deeper contaminated soil. Impacted groundwater and coincident surface water indicate the drainage features near the northern fence receive groundwater discharge containing uranium that was solubilized along the flow path through the FUSRAP-related material. The deeper TWPs show lower concentrations, whereas the shallower wells have noticeably higher concentrations due to dissolution of uranium in the FUSRAP-related material as groundwater passes through the contamination. This impacted groundwater then partially discharges to the surface water features or flows downgradient towards Two Mile Creek. Groundwater contours can be seen in Figure 3-7 of the 2005 Remedial Investigation Report (USACE 2005).

The loss of uranium to the water media and associated concentration fluctuations indicate a possible depletion of the uranium source term, which has manifested higher ratios of thorium and radium with respect to uranium than normally seen in the Linde source material. This is evident in both the 2001 and 2010 data when compared to Linde RI data; the soil source ratios Ra-226:U-238 and Th-230:U-238 are higher in the Landfill OU soil samples due to the potential loss of uranium from leaching and much less mobile radium and thorium. In addition, the averages of these ratios between the 2001 and 2010 USACE sampling show an overall site-wide increase in the ratios, thus corroborating the loss of uranium from the source material to water pathways.

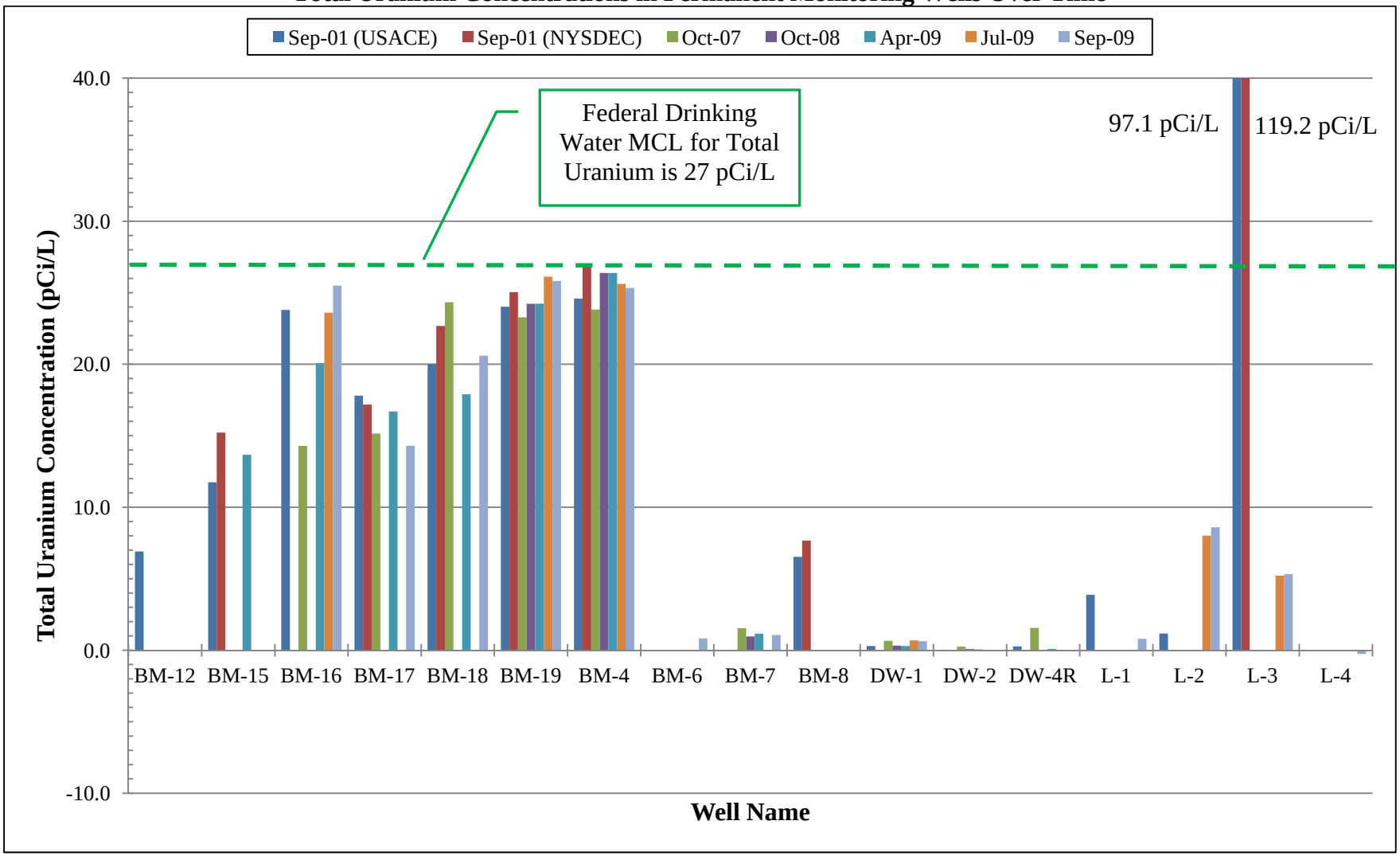
Table 2-3
Results of 2009 USACE Permanent Monitoring Well Sampling

Sample ID[1]	Constituent																	
	Ra-226		Ra-228		Th-228		Th-230		Th-232		U-234		U-235		U-238		Total U	
	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (µg/L)	Flag
BM-16	0.71186		0.13985	U	0.0313	U	0.1695	U	0.04898	U	14.25		0.9395		11.31		26.4563	
BM-16-F	0.54844		1.25366		-0.0242	U	0.1074	U	-0.0116	U	12.26		1.31		11.92		29.3416	
BM-17	1.61616		0.9427		0.1217	U	0.3508		0.03804	U	9.582		0.3404	U	8.078		20.1569	
BM-17-F	0.35981		0.62599	U	0.06519	U	0.1835	U	0.00952	U	6.71		0.6448		6.946		18.4346	
BM-18	0.99443	J	0.75215	U	0.03235	U	0.138	U	0.1148	U	10.02		0.7921		7.566		-	
BM-18-F	0.89834		0.95594		0.04664	U	0.2286		0.00467	U	10.53		0.6087		9.455		35.3711	
BM-19	0.33789	U	0.55608	U	0.05077	U	0.07787	U	0.01641	U	11.96		0.6103		10.6		27.0678	
BM-19-F	0.4402		0.90465	U	-0.0058	U	0.2648		0	U	14.48		0.5543		10.78		25.4029	
BM-4			0.90544	U	-0.0463	U	0.2477		0.06388	U	13.06		1.312		14.24		27.9779	
BM-4-F	0.79977	J	-0.178	U	0.01893	U	0.2472		-0.0065	U	12.99		0.5038		11.83		26.7362	
BM-6	0.95213	J	0.96393	U	0.05914	U	0.3102		-0.006	U	0.4461	U	0.1248	U	0.1808	U	-	
BM-6-F	0.53406	J	2.10056		-0.011	U	0.3223		0.1053	U	0.4542	U	0.3725	U	-0.0026	U	-	
BM-7	1.08511	J	0.33863	U	0.02333	U	0.2518		0.02409	U	1.039		0.2177		0.5073		1.46621	
BM-7-F	1.68016		0.45328	U	0.06138	U	0.2311		-0.0111	U	0.653		-0.0118	U	0.4177		1.03339	
BM-7-F-D	0.43504	J	0.04247	U	0.01097	U	0.1517	U	0.01079	U	0.6041		0.1001	U	0.2851	U	1.10552	
DW-1	0.61692	J	0.96102	U	0.02107	U	0.2518		0.0575	U	0.6446		-0.0375	U	0.3354		0.54548	U
DW-1-F	1.86605		0.45189	U	-0.0549	U	0.2915		-0.027	U	0.4348		0.1402	U	0.0618	U	0.3302	U
L-1	0.87329		2.75376		0.03885		0.1717		0.1105		1.265		0.13		0.568		1.01444	
L-1-D	0.51372	J	0.76311	U	0.02436	U	0.1561	U	0.1062	U	0.7138		0.4403	U	1.006	U	0.90356	U
L-1-F	0.98946	J	2.0797		0.02112	U	0.2912		0.1621		1.939		0.08643	U	0.4811	U	0.91493	U
L-2	0.4527		0.88798	U	0.04367	U	0.1236	U	-0.0045	U	2.745		0.3509	U	1.778		6.39801	
L-2-F	1.3298		4.53719	U	0.04204	U	0.2309		-0.0043	U	3.878		0.2603	U	4.457		-	
L-3	1.35219		0.90738	U	-0.023	U	0.2611		-0.009	U	3.543		0.2719	U	2.985		7.37481	
L-3-F	1.18152	J	0.79123		-0.0007	U	0.2167		0.04286	U	2.187		0.2791		2.852		6.60699	
L-4	0.3368		2.37318	U	0.03132	U	0.2782		0.144	U	-0.0518	U	-0.0319	U	-0.0902	U	0.22229	U
L-4-F	0.52342	J	0.98525	U	0.08987	U	0.2885		0.0665	U	-0.063	U	-0.0996	U	-0.1005	U	0.4039	U

Qualified Flags:
J: Estimated
U: Non-detect

1. Sample IDs that include "-F" in their name indicate a filtered sample.

Figure 2-3
Total Uranium Concentrations in Permanent Monitoring Wells Over Time



2.4. Vegetation and Root Zone Sampling

USACE conducted vegetation and root zone sampling on October 15, 2009. Samples were collected from four distinct trees in close proximity to where historical sampling had found elevated levels of FUSRAP-related material. This sampling was performed in order to attempt to characterize what, if any, impact the large willow trees were playing on movement of groundwater through the landfill (phytohydraulics), as well as to understand whether or not plant uptake of radionuclides was occurring (ITRC 2009). For example, there was a potential that the trees could be having an effect not only on the contaminant fate and transport, but also possibly acting as a medium for human and/or animal exposure to FUSRAP-related material. Photographs documenting this sampling may be found in Appendix C.

Various parts of the willow trees were sampled including leaves, trunk, roots, and soil and water (unfiltered) from the root zone. Location #4 was the only location where surface water was available. Trunk and root samples were obtained through the use of a small hatchet. Leaf samples were obtained by removing them from low hanging branches around the perimeter of the tree. Trunk samples were collected by removing the top layer of bark and collecting cambium and sap wood portions of the trunk via a small hatchet. Root samples consisted of the exposed root at the base of the tree and root exposed above soil, a few feet from the base of the tree. One soil sample from each root zone, within a few feet of the tree, was obtained by means of hand auger. All four locations met with refusal at depths of 53-81 cm (21-32 in) bgs due to compact fill material (rock/stone, glass, etc.). The bottom portion of the core was collected (~30 cm). Water that seeped/filled into those hand augured holes was sampled unfiltered and was heavily turbid (see Appendix C, photograph 14. The water was approximately 30 cm (1 ft) bgs. At the fourth tree location, standing water was encountered at the soil surface in the vicinity of the root zone, and this was sampled (unfiltered) in addition to the above mentioned material. Soil, water, tree trunk, leaf, and root samples were analyzed at the offsite laboratory (Eberline Analytical-Oak Ridge, TN) by alpha spectroscopy via EML methodologies (uranium and thorium COPCs), and LANL gamma spectroscopy method (Ra-226 and -228). Water samples were analyzed by alpha spectroscopy via EML methodologies (uranium and thorium COPCs), and EPA method 903.0/904 (Ra-226 and -228).

Table 2-4 presents a summary of the vegetation sampling results for these four trees. None of the radionuclides measured (radium, thorium, and uranium isotopes) were taken up in significant quantities into any of the vegetation sampled. The activities of these radionuclides were all within the range of activities detected in non-impacted (reference area) soils. Thus human receptors and animals would actually not be expected to receive a significant level of exposure from vegetation. Radionuclides are not being bioaccumulated into vegetative tissue, so there would be no increased exposure to receptors consuming vegetation relative to exposure to soil or other environmental media.

Table 2-4
Results of 2009 USACE Vegetation Sampling

	Constituent															
	Ra-226		Ra-228		Th-228		Th-230		Th-232		U-234		U-235		U-238	
Sample ID	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag
TTLF-TREE-1-Leaf	0.349231		0.15456	U	0.05427	U	0.03051	U	0	U	0.01476	U	0.00807	U	0.00148	U
TTLF-TREE-1-Root	0.170601		0.72536	U	0.03182	U	0.03094	U	-0.0046	U	0.07645	U	0.01789	U	0.04375	
TTLF-TREE-1-Trunk	0.06236	U	-0.0287	U	-0.0091	U	0.03557	U	-0.0026	U	0.03297	U	0.02141	U	0.02888	U
TTLF-TREE-2-Leaf	0.00895	U	0.56392	U	-0.0026	U	0.08322		0.00803	U	0.04004		0.02045	U	0.03161	U
TTLF-TREE-2-Root	0.132269	U	0.97445	U	0.01247	U	0.04554	U	0.09529	U	0.03995	U	0.05169	U	0.04172	U
TTLF-TREE-2-Trunk	0.024056	U	0.20818	U	0.00638	U	0.059	U	-0.003	U	0.06226	U	0.06044	U	0.06392	
TTLF-TREE-3-Leaf	0.147311		0.21145	U	-0.0175	U	0.04057	U	0.0063	U	0.04724		0	U	0.0392	
TTLF-TREE-3-Root	0.060383	U	0.61314	U	0.02113	U	0.1521		-0.0003	U	0.06266	U	0.02577	U	0.01137	U
TTLF-TREE-3-Trunk	0.149791	U	0.3037	U	0.02622	U	0.02072	U	0.01379	U	0	U	0.01495	U	0.01206	U
TTLF-TREE-4-Leaf	0.007237	U	0.39696	U	0.01077	U	0.01608	U	0.01458	U	0.08861		-0.0021	U	0.01691	U
TTLF-TREE-4-Root	0.127495	U	0.08383	U	0.01953	U	0.03578	U	0.02556	U	0.09175		0.0481	U	0.07997	
TTLF-TREE-4-Trunk	0.074501	U	0.36216	U	0.00746	U	0.041	U	0.00892	U	0.05739		0.02682	U	0.00982	U

Qualified Flags:
J: Estimated
U: Non-detect

Table 2-5 presents a summary of results of sampling the soil within the root zone of these trees. The first tree had slightly elevated Ra-228 in its root zone (5.2 pCi/g) but did not have elevated concentrations of the FUSRAP-related radionuclides (Ra-226, Th-230, or uranium). The third and fourth trees sampled had some elevated uranium concentrations in their root zone soil (10.6 and 23.1 pCi/g total uranium, respectively). Note that these were the trees that exhibited the greatest concentrations of uranium in the groundwater of the root zones. Radium and thorium were not elevated in the root zone soils of these trees.

Table 2-6 presents a summary of results from sampling water from within the root zone of these trees. All of the groundwater samples had elevated concentrations of total uranium, ranging from 42 pCi/L in the root zone of the first tree to 340 pCi/L in the root zone of the fourth tree. Ra-226 activities were elevated in the root zone of the third and fourth trees (up to 7.8 pCi/L near the fourth tree). Thorium activities were also elevated in the root zone groundwater, especially near the third tree (up to 44.95 pCi/L). The groundwater samples were not filtered and were quite turbid (not clear or transparent) because of stirred-up soil, see Appendix C Photograph 14. Unfiltered samples include unfiltered sample activity associated with the water and also that of the materials entrained in suspension that become associated with the water due to the sample being acidified for preservation. Filtered results only measure activity levels associated with the water sample and not surrounding media. As a result, one would expect to find higher activities with an unfiltered sample versus a filtered sample. This can be seen in Table 2-3 which shows the results of filtered and unfiltered groundwater samples.

Finally, the surface water sample (unfiltered) that was collected in the vicinity of the root zone of the fourth tree had a concentration of 23 pCi/L total uranium and very low levels of the other radionuclides.

These results indicate that while the willow trees may be drawing in uranium-contaminated water toward their root zone, i.e., affecting the hydrology at the site, bioaccumulation of radionuclides is not occurring. These findings are within the range of previous studies. The uptake of uranium and thorium in plants is highly variable, and depends on plant species and age, soil grain size, and soil and water chemistry (Ebbs et al 1998 and 2001, Edmands et al 2001, Hinton et al 2005, Kennedy et 1997, Mihalik et al 2010). In previous studies of the uptake of uranium and thorium into plants, the overall plant-to-soil concentration ratios for these elements were generally very low (less than 0.1) (Sheppard and Evenden 1988). Given the age of the willow trees, the circumneutral pH of the soils and area groundwater, and the clay soils, the fact that appreciable uranium, thorium, or radium were not found in the vegetative tissues of these particular willow trees is not unexpected.

2.5. Soil Sampling

The purpose of the Phase 2 RI sampling of soil was to collect data of sufficient quality and quantity to assist in the future decision-making process (USACE 2011). Both systematic and biased soil locations were sampled, according to rationale presented in the field sampling plan (USACE 2010). Some of the biased locations were targeted at the locations that the DOE had previously sampled and had identified radioactivity above background concentrations.

Table 2-5
Results of 2009 USACE Root Zone Soil Sampling

	Constituent															
	Ra-226		Ra-228		Th-228		Th-230		Th-232		U-234		U-235		U-238	
Sample ID	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag	Result (pCi/g)	Flag
TTLF-TREE-1-Soil	0.15	U	5.16		0.69		1.09		0.70		1.18		0.04	U	1.12	
TTLF-TREE-2-Soil	0.36		1.69		0.62		0.98		0.79		1.74		0.13		2.04	
TTLF-TREE-3-Soil	0.18	U	0.52	U	0.57		1.21		0.76		5.24		0.42		4.92	
TTLF-TREE-4-Soil	0.39		0.50	U	0.61		0.65		0.48		11.33		0.91		10.87	

Qualified Flags:
J: Estimated
U: Non-detect

Table 2-6
Results of 2009 USACE Root Zone Groundwater Sampling

	Constituent															
	Ra-226		Ra-228		Th-228		Th-230		Th-232		U-234		U-235		U-238	
Sample ID	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag	Result (pCi/L)	Flag
TTLF-TREE-1-GW	1.560105		0.0984	U	3.3		6.519		4.505		20.09		2.171		20.31	
TTLF-TREE-2-GW	3.255276		0.62144		10.07		11.04		10.25		35.77		3.26		35.21	
TTLF-TREE-3-GW	6.861183		0.36755	U	29.65		44.95		25.37		102.9		8.675		107.7	
TTLF-TREE-4-GW	7.824637		0.49892		3.351		3.388		2.776		163.8		13.49		163.1	
TTLF-TREE-4-SW	1.363219		1.23733		0.08661	U	0.2364		0.08393	U	10.38		0.5828		12.21	

Qualified Flags:
J: Estimated
U: Non-detect

2.5.1. Soil Sample Collection

Soil borings were conducted at 132 pre-determined (systematic) locations and 61 biased locations. Boring activities were performed using direct push methodology with a fully equipped track-mounted Geoprobe. Two types of data were collected while the soil borings were being drilled: geologic information, and radiological scanning data. In IA1through IA5, five samples were collected per soil boring location. In these borings, each sample collected included a 30-cm (1-ft) segment of the boring (except for the cores' surface, which included approximately the top 15 cm [6 in] of the boring) at the following locations:

1. The core surface (i.e., the top 15 cm [6 in] of the current landfill surface)
2. A soil sample from the first 30 cm (1 ft) just inside the saturated zone
3. A sample from the first 30 cm (1 ft) of native soil below the general landfill waste
4. A 30-cm (1-ft) sample centered on the core area where the gamma instrument registered the highest reading. If the highest gamma instrument reading interval was the same as any of the above three fixed intervals (i.e., the highest scan reading was in either the top 15 cm [6 in], at the saturated zone interface, or in the first 30 cm [1 ft] of native soil), then the fourth sample interval was selected at the second highest gamma reading or by other professional judgment.
5. A 30-cm (1-ft) sample centered on the core area where the beta survey instrument registered the highest beta reading. If the highest beta reading interval was the same as any of the above four fixed intervals (i.e., the highest scan reading was in either the top 15 cm [6 in], at the saturated zone interface, in the 30 cm [1 ft] of native soil, or in the area of the highest gamma instrument reading), then the fifth sample interval was selected using the following decision tree:
    a. A 30-cm (1-ft) sample centered on the core area with the second highest gamma reading,
    b. A 30-cm (1-ft) sample centered on the core area with the second highest beta reading, or
    c. A 30-cm (1-ft) core sample using other professional judgment.

In IA6, where the potential for finding FUSRAP-related material was much lower, only four samples were obtained per boring as follows:

1. The core surface (i.e., the top 15 cm [6 in] of the current landfill surface). If the boring location was on the access road, then the sample was collected from the first 15 cm (6 in) of soil beneath the road bed material (i.e., below any pavement and gravel base).
2. A soil sample from the first 30 cm (1 ft) just inside the saturated zone. If the saturated zone was not reached in the boring (i.e., it was deeper than the termination depth of the boring), then the sample was collected from the bottom 30 cm (1 ft) of the boring.
3. A 30-cm (1-ft) sample centered on the core area where the gamma instrument registered the highest reading. If the highest gamma instrument reading interval was the same as any of the above two fixed intervals (i.e., the highest scan reading was in either the top 15 cm [6 in], or at the saturated zone interface) then the third sample interval was selected from the core area with the second highest gamma reading, or by other professional judgment.

4. A 30 cm (1 ft) sample centered on the core area where the beta instrument registered the highest beta reading. If the highest beta reading interval was the same as any of the above three fixed intervals (i.e., the highest scan reading was in either the top 15 cm [6 in], or at the saturated zone interface, or in the area of the highest gamma instrument reading), then the fourth sample interval was selected using the following decision tree:
    a. A 30-cm (1-ft) sample centered on the core area with the second highest gamma reading,
    b. A 30-cm (1-ft) sample centered on the core area with the second highest beta reading, or
    c. A 30-cm (1-ft) core sample using other professional judgment.

A total of 962 samples were collected over the course of the soil sampling event and sent for off-site laboratory analysis as described in Section 2.5.1.2.

2.5.1.1. XRF Analysis

During the sampling activities in IA1 and IA2, aliquots of soil from locations exhibiting the highest gross beta and gross gamma readings were collected and scanned using a portable x-ray fluorescence (XRF) analyzer (Miller 2011). A total of 57 XRF samples were collected from the 44 sample locations in IA1, and 41 XRF samples were collected from the 25 sample locations in IA2. The XRF analyzer was used to scan the soil samples to detect concentrations of total uranium and total thorium in a real-time setting. Each sample was scanned *in-situ*, through the thin plastic baggies the samples were placed in, soon after the samples were collected. An acquisition time of 45 seconds was utilized. The percent moisture of the sample was found using a moisture gauge and recorded. The results of this field screening were used to determine the presence of total uranium and thorium in the soil prior to receiving off-site laboratory results. A portion of the samples, 26 out of the 57 samples collected in IA1, were also homogenized, sieved and dried (*ex-situ*) and scanned using a 180 second acquisition time. *Ex-situ* samples were collected to determine the affect of soil moisture and non-homogeneity on XRF results. *In-situ* and *ex-situ* results were compared against each other and to laboratory results, once received, to determine the applicability of using an XRF during the RI phase at other FUSRAP sites. It was determined that there was a strong relationship with very little variance ($R^2 > 90\%$) between reported XRF total uranium concentrations and laboratory U-238 concentrations, and there was an extremely poor relationship between reported XRF total thorium and laboratory Th-230 concentrations (most likely due to the low concentrations encountered, inherent theory behind XRF analyzers, and the fact that natural thorium consists mainly of the isotope thorium-232 [Th-232]). The conclusion of this investigation was that the XRF analyzer is capable of detecting total uranium in the field with an acceptable accuracy (when compared to laboratory U-238 concentrations). Although XRF analysis cannot replace off-site laboratory analysis for quantitative needs (i.e. gamma and/or alpha spectroscopy) it can be useful for screening and guiding sampling in the field.

2.5.1.2. Laboratory Analysis

Soil samples were analyzed via gamma spectroscopy, and results were reported for Ra-226, Ra-228, uranium-235 (U-235), and U-238. In addition, isotopic thorium (Th-228, Th-230, and Th-232) was analyzed via alpha spectroscopy. All IAs contained levels greater than established

reference background levels, although outside of IA1 most were not significantly above background. IA1 contained the highest number of locations with samples elevated significantly above background as well as the highest activity levels at the site for FUSRAP-related materials.

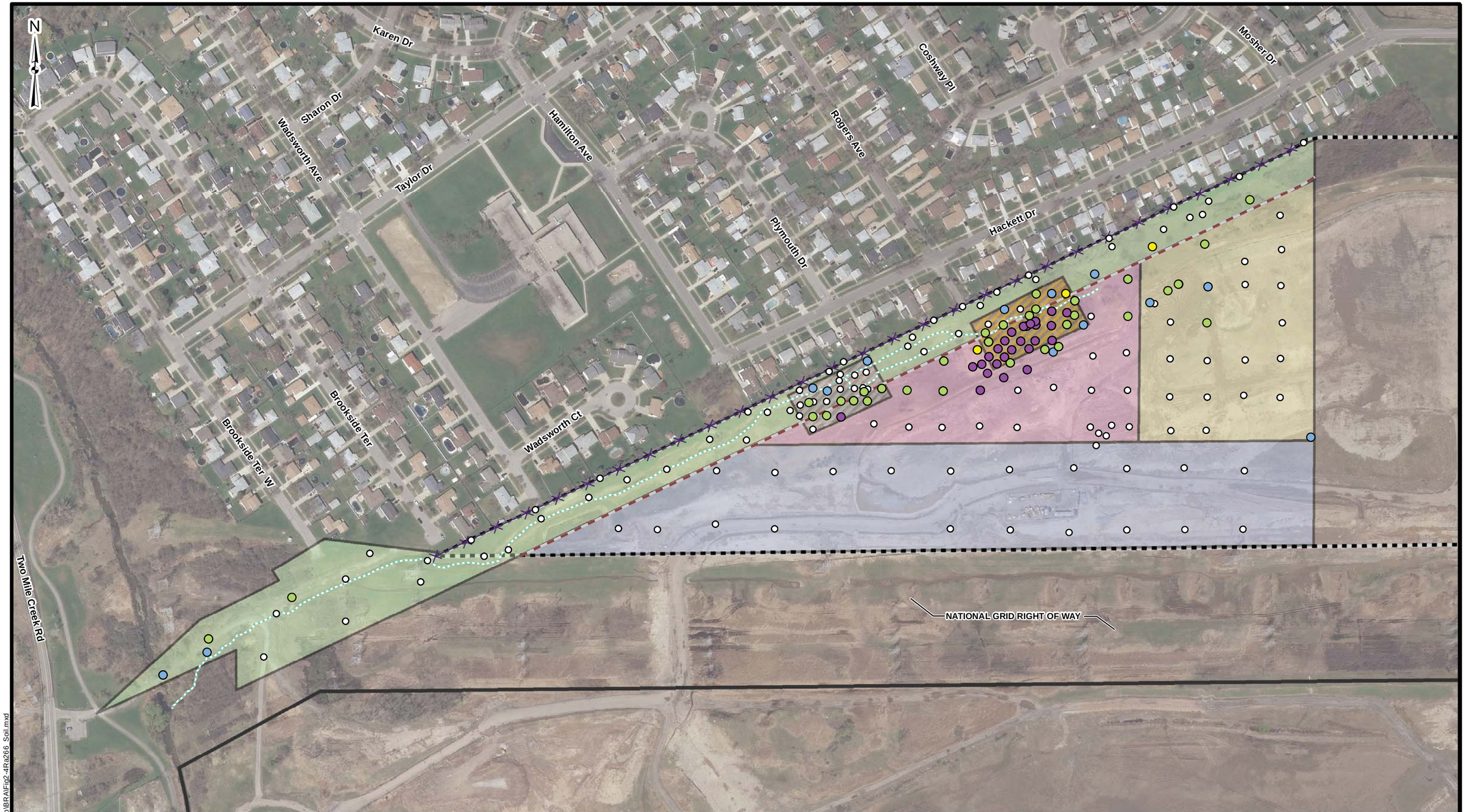
The maximum detected concentration of FUSRAP-related material was detected in location IA1-5 at a recorded depth of 2 to 3 ft bgs (logged as 3 to 4 ft bgs in the boring log due to the presence of a void at the top of the boring). This location had a reported Th-230 activity level of 1,640 pCi/g, U-238 activity of 2,048 pCi/g, and Ra-226 activity of 3,485 pCi/g. The sample with the second greatest detection of radioactivity in the Landfill OU occurred from location IA1-3, at a recorded depth of 5.5 m (18.1 ft) bgs. This sample contained a reported Th-230 activity level of 59 pCi/g, U-238 activity of 547 pCi/g, and Ra-226 activity of 892 pCi/g. As noted in Table 1-1, there were a total of 193 locations (site-wide) from which a soil coring was obtained and analyzed. There are approximately 25 soil sampling locations, clustered in IA1 and IA5, which have Ra-226 concentrations exceeding 15 pCi/g, located in an area of approximately 3,430 m^2 (36,920 ft^2) as shown in Figures 2-4 and 2-5. These locations also had elevated uranium and, to some extent, thorium concentrations. The average concentrations in this area (all depths combined) are 55 pCi/g Ra-226, 20 pCi/g Th-230, and 46 pCi/g U-238 (Appendix E). The 95th percentile upper confidence limits (UCL95) of the means of these concentrations are 164 pCi/g Ra-226, 60 pCi/g Th-230, and 162 pCi/g U-238 (Appendix E).

2.5.1.3. Extent of Elevated Radium in Soil Samples

Figures 2-4 and 2-5 present the locations of USACE 2010 soil sampling results with Ra-226 activity above screening levels (based on 40 CFR 192). As noted in Figure 2-5, which presents the sampling locations superimposed over a 1951 aerial photograph, the elevated activity seems to coincide with the area of the landfill that in 1951 appeared to be a “graded area” as determined in the Historical Photographic Analysis (USAGC 2009).

2.6. Data Review and Qualification

A review of the data was performed using guidance/procedures found in Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP) section 18.4 (Radiochemistry Performance Indicators) and the applicable laboratory criteria for USACE EM 200-1-10 (Guidance for Evaluating Performance Based Chemical Data) and DOD QSM Version 4.2 (Appendices: D, E and G). All of the data was reviewed, and 100% of the data was qualified. A small percentage of data was rejected based on this review. Rejected data fell into two categories: batch method blank findings exceeding that of the primary finding (for soils: Th-230 and Th-228, for groundwater: Ra-228), and laboratory QA/QC issues (fewer instances). Several water samples that were analyzed via kinetic phosphorescence analysis (KPA) for total uranium were rejected due to unresolved laboratory issues for those samples.



Legend

- Radium-226 > 15 pCi/g
- Radium-226 12 to 15 pCi/g
- Radium-226 5 to 12 pCi/g
- Radium-226 4 to 5 pCi/g
- Radium-226 < 4 pCi/g
- Northern Drainage Ditch
- Landfill Operable Unit Boundary
- Mudflats Operable Unit Boundary
- Investigation Area 1
- Investigation Area 2
- Investigation Area 3
- Investigation Area 4
- Investigation Area 5
- Investigation Area 6
- 100ft Boundary Offset
- Fenceline

0 125 250 500 Feet

US Army Corps of Engineers Buffalo District

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CORPS OF ENGINEERS
BUFFALO, NY

2010 SOIL SAMPLING LOCATIONS
RADIUM-226 CONCENTRATIONS

Document Name: Fig2-4Ra266_Soil.mxd
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TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 2-4

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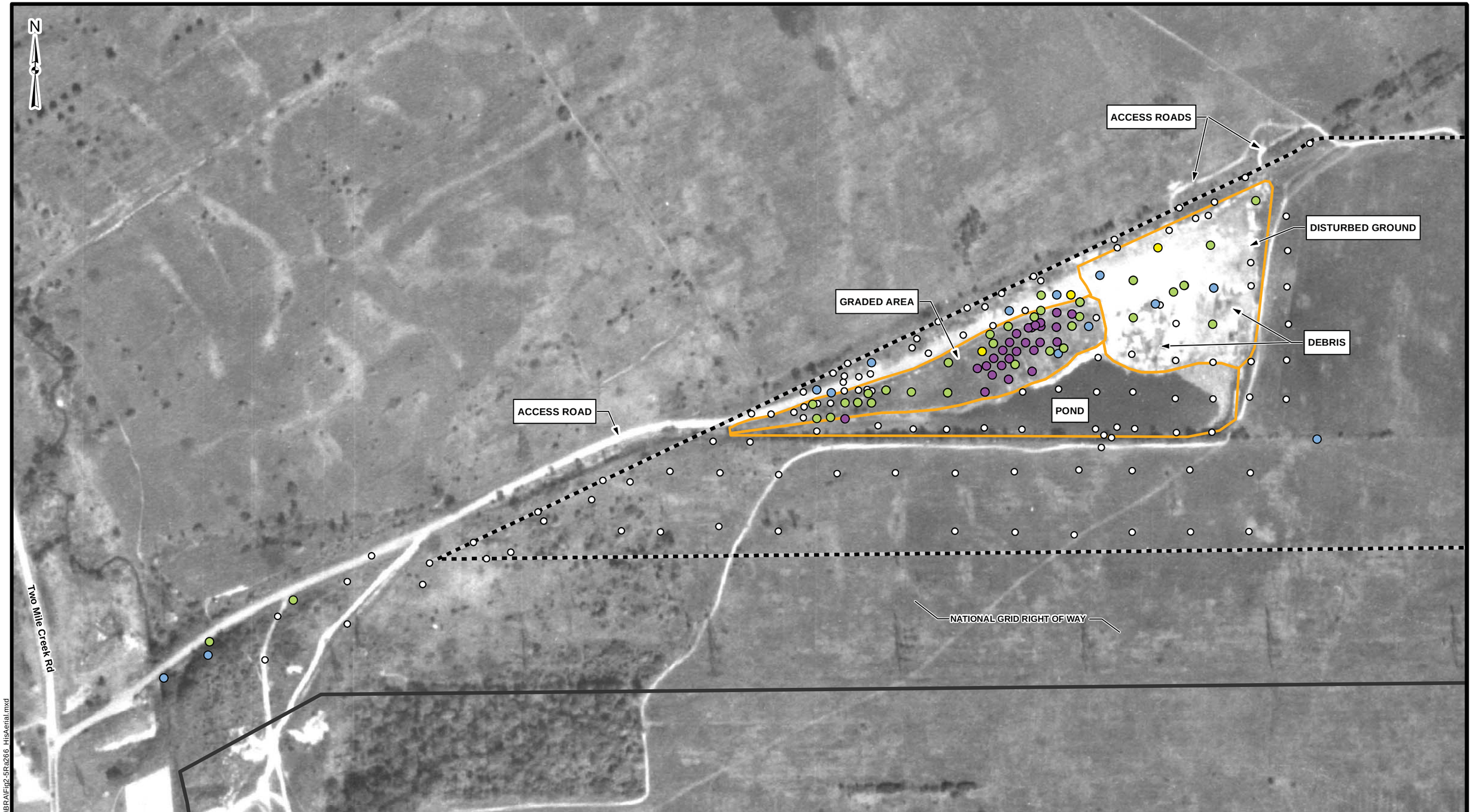

Legend

- Radium-226 > 15 pCi/g
- Radium-226 12 to 15 pCi/g
- Radium-226 5 to 12 pCi/g
- Radium-226 4 to 5 pCi/g
- Radium-226 < 4 pCi/g
- Landfill Operable Unit Boundary
- Mudflats Operable Unit Boundary
- Site Features Identified in the 2009 Historical Photographic Analysis

0 125 250 500 Feet

US Army Corps of Engineers, Buffalo District

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CORPS OF ENGINEERS
BUFFALO, NY

2010 SOIL SAMPLING LOCATIONS
RADIUM-226 CONCENTRATIONS WITH 1951 AERIAL PHOTOGRAPHY
AND USAGC INTERPRETATION (USAGC 2009)

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TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 2-5

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2.7. Data Evaluation for the Updated BRA

As noted in Section 1.4.3.2, USACE 2010 sampling confirms previous DOE sampling and is more comprehensive than earlier sampling efforts. Therefore, only the latest data set will be used in this updated baseline risk assessment at the Landfill OU. Only results that were accepted during data verification (Section 2.6) will be used in this risk assessment. For the human health risk assessment, only data collected within the property boundaries of the Landfill OU will be included in developing exposure point concentrations. This data is summarized in Table 2-8. For the screening level ecological risk assessment (presented in Section 7), the additional off-site sediment and surface water samples collected in 2011 and discussed in Sections 2.1.3 and 2.2.2, respectively, will also be considered. The on-site data used for the ecological risk assessment are summarized in Appendix E.

During the RI, field duplicate samples were collected and analyzed for use in quality control. When co-located samples were collected as field duplicates, the laboratory reported two results for one sample location. The greatest of the two field duplicate analyte concentrations was used as part of the data set for developing the EPC for use in risk assessment calculations.

2.7.1. Selection of Constituents of Potential Concern

The COPCs were selected based on a comparison to background data from the USACE 2005 RI. The background screening value was taken as the lower of the maximum detected concentration in background or the 95th percentile upper tolerance limit. If the maximum detected constituent in an EU exceeds the background screening value, it will be carried forward to the risk assessment. Table 2-7 presents a summary of the background data set for the landfill.

Table 2-8 presents a summary of the results of this screen against background (for data collected on-site). The following COPCs were identified: Ra-226, Ra-228, Th-228, Th-230, Th-232, uranium-234 (U-234), U-235, and U-238. Other radionuclides which are daughter products to Ra-226 and U-235 (lead-210 and protactinium-231, and actinium-227, respectively) were assumed to exist in equal concentrations (i.e., secular equilibrium) with their parents in developing EPCs (Section 3.4.1).

2.7.2. Evaluation of Soil Sample Collection Depth and Voids in Soil Cores

Samples were collected through the Landfill OU subsurface by collecting 122 cm (4 ft) long soil core segments utilizing direct-push methodology (USACE 2011). The resulting cores included many voids interspersed between the soil and subsurface medium that were brought up through the direct-push borings (USACE 2011, Appendices I and J). Most of the cores recorded a void at the surface. There can be several reasons why voids were encountered in the corings, including settling in the sampling tube, loss of material from the bottom of the tube as the tube is withdrawn from the boring hole, encountering rocks, concrete or other impenetrable material compaction, or passing through a saturated zone. Without performing further characterization of the subsurface, it remains unknown exactly what was causing each and every one of the voids in the corings. Therefore, there is some uncertainty regarding the true depth bgs from which the soil samples were obtained. Sampling depth was evaluated three different ways: as recorded in the boring log with all voids included, with only the top void removed, and with all voids removed. Summary of results from the various depth intervals with the different treatment of voids may be

found in Appendix E. For purposes of developing EPCs for the BRA, the top voids were ignored, but the remaining voids were left as is when determining depth of sample. The uncertainty associated with this assumption and its potential impact on BRA conclusions are discussed in Section 6.1. The risk assessment evaluated two depth intervals, 0 to 61 cm (2 ft) below ground surface, and all soil depths. One of the receptors (trespasser for current use or “recreational” for potential future use) was assumed to be exposed initially only to surficial soil (defined as the top 61 cm [2 ft]), while the construction worker and future trespasser (or recreational) receptors were assumed to be exposed to soils at deeper depths.

Table 2-7
Background Radionuclide Concentrations

Radionuclide	# Detections / # Samples	Minimum Detection (pCi/g)	Maximum Detection (pCi/g)	Average Result (pCi/g)	95th Upper Tolerance Limit (pCi/g)	Values Used as Background Screen[1] (pCi/g)
Landfill Reference Area Results[2] – Surface Soils (0 – 2 ft BGS)						
Am-241	1/19	0.09	0.09	0.01	0.08	0.08
Ac-227[3]		0.05	0.22	0.05	0.19	0.19
Pa-231[3]		0.05	0.22	0.05	0.19	0.19
Pb-210[4]		0.71	1.40	0.95	1.70	1.40
Ra-226	18/19	0.71	1.40	0.95	1.70	1.40
Ra-228	19/19	0.53	1.80	0.80	1.53	1.53
Th-228	19/19	0.48	1.06	0.87	1.22	1.06
Th-230	19/19	0.70	1.12	0.93	1.22	1.12
Th-232	19/19	0.59	1.02	0.86	1.13	1.02
U-234	19/19	0.52	1.33	0.84	1.37	1.33
U-235	8/19	0.05	0.22	0.05	0.19	0.19
U-238	19/19	0.61	1.86	0.86	1.50	1.50
Landfill Reference Area Results[2] – All Soils						
Am-241	2/39	0.09	0.15	0.00	0.08	0.08
Ac-227[3]		0.05	0.22	0.05	0.17	0.17
Pa-231[3]		0.05	0.22	0.05	0.17	0.17
Pb-210[4]		0.58	1.91	1.00	1.66	1.66
Ra-226	38/39	0.58	1.91	1.00	1.66	1.66
Ra-228	39/39	0.36	1.80	0.72	1.32	1.32
Th-228	39/39	0.48	1.16	0.83	1.14	1.14
Th-230	39/39	0.62	1.28	0.92	1.26	1.26
Th-232	39/39	0.51	1.02	0.82	1.09	1.02
U-234	39/39	0.51	2.38	0.85	1.50	1.50
U-235	13/39	0.05	0.22	0.05	0.17	0.17
U-238	39/39	0.44	2.49	0.86	1.62	1.62

1. The background screening value is the lower of the maximum detection or the 95% upper tolerance limit of the reference (background) data set
2. The reference (background) area for the Landfill OU was defined in the 2005 Remedial Investigation Report; see Figure 4-9 in the report for sampling locations (USACE 2005)
3. Assumed to be in equilibrium with (equal to) U-235
4. Assumed to be equal to Ra-226

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Tonawanda Landfill
Table 2-8
Summary and Screening of Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	143	142	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	155	19	3.58E-01-4.33E+01	IA1-3	0-0.5	3.18E+00	1.40E-01-2.89E+00	1.40E+00	3.54E+00	95% KM (BCA) UCL
RA-228	pCi/g	155	4	4.01E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.02E+00	6.75E-02-1.57E+00	1.53E+00	1.08E+00	95% KM (BCA) UCL
TH-228	pCi/g	152	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.54E-01	5.42E-03-1.82E-01	1.06E+00	8.99E-01	Use 95% Student's-t UCL
TH-230	pCi/g	154	0	4.34E-01-4.14E+00	IA1-20	0-0.5	1.22E+00	5.53E-03-1.88E-01	1.12E+00	1.30E+00	Use 95% Student's-t UCL
TH-232	pCi/g	155	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.24E-01	9.25E-03-1.24E-01	1.02E+00	8.74E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	155	26	5.71E-02-3.65E+01	IA1-3	0-0.5	2.73E+00	1.84E-02-2.63E+00	1.33E+00	2.96E+00	95% KM (BCA) UCL
U-235	pCi/g	155	141	7.41E-02-2.92E+00	IA1-3	0-0.5	7.22E-01	4.05E-02-8.59E-01	1.89E-01	2.20E-01	95% KM (t) UCL
U-238	pCi/g	155	33	5.38E-01-3.65E+01	IA1-3	0-0.5	2.84E+00	3.27E-02-2.63E+00	1.50E+00	2.99E+00	95% KM (BCA) UCL
EU1 - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	525	522	5.30E-02-7.11E-02	IA6-20	1.5-2	5.98E-02	2.82E-02-2.12E+00	8.12E-02	5.37E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	6.34E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	9-10	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	537	37	3.58E-01-3.49E+03	IA1-5	3-4	2.18E+01	1.40E-01-1.68E+01	1.66E+00	5.12E+01	95% KM (Chebyshev) UCL
RA-228	pCi/g	537	8	3.13E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.20E+00	4.96E-02-2.27E+00	1.32E+00	1.25E+00	95% KM (BCA) UCL
TH-228	pCi/g	532	0	2.87E-01-3.96E+00	IA1-B12	19-20	1.04E+00	5.42E-03-1.51E+00	1.14E+00	1.09E+00	Use 95% Student's-t UCL
TH-230	pCi/g	528	0	3.48E-01-1.64E+03	IA1-5	3-4	8.35E+00	5.53E-03-1.01E+00	1.26E+00	2.36E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	537	0	2.79E-01-7.08E+00	IA1-B6	15-16	1.02E+00	6.17E-03-6.73E-01	1.02E+00	1.16E+00	Use 95% Chebyshev (Mean, Sd) UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	537	82	5.31E-02-2.05E+03	IA1-5	3-4	1.77E+01	1.84E-02-1.96E+01	1.50E+00	3.45E+01	95% KM (Chebyshev) UCL
U-235	pCi/g	537	473	7.41E-02-1.59E+02	IA1-5	3-4	8.86E+00	4.05E-02-5.11E+00	1.69E-01	2.66E+00	95% KM (Chebyshev) UCL
U-238	pCi/g	537	106	5.22E-01-2.05E+03	IA1-5	3-4	1.86E+01	3.27E-02-1.96E+01	1.62E+00	3.45E+01	95% KM (Chebyshev) UCL
EU2 - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	75	74	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	75	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	3.58E-01-4.74E+00	1.40E+00	2.36E+00	Use 95% Student's-t UCL
RA-228	pCi/g	75	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.45E-01	6.94E-02-4.45E-01	1.53E+00	9.02E-01	Use 95% Student's-t UCL
TH-228	pCi/g	73	0	2.85E-01-1.38E+00	IA5-B03	0-0.5	7.50E-01	5.33E-03-1.49E-01	1.06E+00	7.92E-01	Use 95% Student's-t UCL
TH-230	pCi/g	74	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.64E-01	1.24E-02-8.70E-02	1.12E+00	1.02E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	75	0	2.42E-01-2.20E+00	IA6-12	0-0.5	7.29E-01	8.93E-03-8.52E-02	1.02E+00	7.79E-01	Use 95% Student's-t UCL
U-234	pCi/g	75	0	6.18E-02-5.87E+00	IA3-6	0-0.5	1.25E+00	1.52E-02-4.18E+00	1.33E+00	1.39E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	75	75	-	-	-	-	9.52E-02-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	75	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.26E+00	3.39E-01-4.18E+00	1.50E+00	1.41E+00	Use 95% Student's-t UCL
EU2 (rest of landfill) - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	293	279	3.15E-02-6.05E-01	IA4-16	13-14	2.11E-01	2.71E-02-3.53E-01	8.12E-02	4.63E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	2.21E-01-2.21E-01	-	0.00E+00	ProUCL did not calculate UCL95

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Table 2-8
Summary and Screening of Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU2 (rest of landfill) - All Depths - Combined Soil and Sediment											
RA-226	pCi/g	293	4	6.92E-01-9.99E+00	IA4-21	5.5-6.5	2.05E+00	3.58E-01-4.74E+00	1.66E+00	2.14E+00	95% KM (BCA) UCL
RA-228	pCi/g	293	0	2.82E-01-3.20E+00	IA3-4	2-3	8.81E-01	5.63E-02-4.45E-01	1.32E+00	9.15E-01	Use 95% Student's-t UCL
TH-228	pCi/g	289	0	2.85E-01-3.48E+00	IA4-B02	16.8-17.8	7.70E-01	3.99E-03-2.70E-01	1.14E+00	8.01E-01	Use 95% Student's-t UCL
TH-230	pCi/g	284	0	3.41E-01-3.20E+00	IA4-B02	16.8-17.8	9.59E-01	6.63E-03-1.41E-01	1.26E+00	9.95E-01	Use 95% Student's-t UCL
TH-232	pCi/g	293	0	2.42E-01-2.73E+00	IA4-B02	16.8-17.8	7.50E-01	3.30E-03-1.32E-01	1.02E+00	7.79E-01	Use 95% Student's-t UCL
U-234	pCi/g	293	5	3.02E-02-8.45E+00	IA4-21	5.5-6.5	1.25E+00	1.52E-02-4.18E+00	1.50E+00	1.33E+00	95% KM (BCA) UCL
U-235	pCi/g	293	291	1.14E-01-1.45E-01	IA6-11	12.5-14	1.29E-01	9.52E-02-1.17E+00	1.69E-01	1.16E-01	95% KM (t) UCL
U-238	pCi/g	293	5	3.38E-01-8.45E+00	IA4-21	5.5-6.5	1.26E+00	2.74E-01-4.18E+00	1.62E+00	1.33E+00	95% KM (BCA) UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	59	59	-	-	-	-	3.55E-02-2.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	65	4	6.70E-01-1.43E+01	IA3-19	1-2	3.07E+00	1.40E-01-2.62E+00	1.40E+00	4.26E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	65	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.12E+00	6.75E-02-1.57E+00	1.53E+00	1.20E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	64	0	4.39E-01-2.69E+00	IA1-20	0.5-1.5	9.62E-01	5.42E-03-1.68E-01	1.06E+00	1.05E+00	Use 95% Student's-t UCL
TH-230	pCi/g	65	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.33E+00	7.66E-03-1.30E-01	1.12E+00	1.47E+00	Use 95% Student's-t UCL
TH-232	pCi/g	65	0	4.67E-01-2.55E+00	IA1-20	0.5-1.5	9.34E-01	1.10E-02-1.11E-01	1.02E+00	1.02E+00	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	65	11	6.02E-02-1.24E+01	IA3-19	1-2	2.21E+00	2.20E-02-2.40E+00	1.33E+00	3.10E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	65	60	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.90E-01	95% KM (t) UCL
U-238	pCi/g	65	15	5.50E-01-1.24E+01	IA3-19	1-2	2.32E+00	3.27E-02-2.40E+00	1.50E+00	2.53E+00	95% KM (BCA) UCL
EU3 (100-ft buffer FILL ONLY) - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	103	102	5.30E-02-5.30E-02	IA3-FL-3	4-5	5.30E-02	3.55E-02-2.66E-01	8.12E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	109	5	6.70E-01-1.43E+01	IA3-19	1-2	3.15E+00	1.40E-01-2.94E+00	1.66E+00	3.39E+00	95% KM (BCA) UCL
RA-228	pCi/g	109	0	4.01E-01-3.34E+00	IA2-8	6-7	1.20E+00	6.17E-02-1.57E+00	1.32E+00	1.28E+00	Use 95% Student's-t UCL
TH-228	pCi/g	108	0	4.39E-01-3.04E+00	IA2-8	6-7	1.03E+00	5.42E-03-1.68E-01	1.14E+00	1.11E+00	Use 95% Student's-t UCL
TH-230	pCi/g	109	0	5.14E-01-4.14E+00	IA1-20	1.1-1.6	1.34E+00	7.66E-03-1.30E-01	1.26E+00	1.46E+00	Use 95% Student's-t UCL
TH-232	pCi/g	109	0	3.43E-01-3.15E+00	IA2-8	6-7	9.77E-01	1.10E-02-1.11E-01	1.02E+00	1.06E+00	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	109	18	6.02E-02-1.24E+01	IA3-19	1-2	2.18E+00	2.20E-02-2.81E+00	1.50E+00	2.27E+00	95% KM (BCA) UCL
U-235	pCi/g	109	104	1.20E-01-9.26E-01	IA1-20	1.1-1.6	3.64E-01	4.05E-02-8.43E-01	1.69E-01	1.67E-01	95% KM (t) UCL
U-238	pCi/g	109	25	5.22E-01-1.24E+01	IA3-19	1-2	2.28E+00	3.27E-02-2.81E+00	1.62E+00	2.28E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	247	243	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	4.97E-02	95% KM (t) UCL
RA-226	pCi/g	261	19	3.58E-01-4.33E+01	IA1-3	0-0.5	2.75E+00	1.40E-01-4.74E+00	1.40E+00	2.99E+00	95% KM (BCA) UCL
RA-228	pCi/g	261	4	3.58E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	9.62E-01	6.20E-02-1.57E+00	1.53E+00	1.01E+00	95% KM (BCA) UCL
TH-228	pCi/g	255	0	2.85E-01-2.99E+00	IA5-15	0-0.5	8.22E-01	5.33E-03-1.82E-01	1.06E+00	8.54E-01	Use 95% Student's-t UCL
TH-230	pCi/g	259	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.12E+00	5.53E-03-1.88E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL

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Tonawanda Landfill
Table 2-8
Summary and Screening of Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
TH-232	pCi/g	261	0	2.42E-01-3.42E+00	IA5-15	0-0.5	7.96E-01	8.93E-03-1.24E-01	1.02E+00	8.32E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	261	26	5.23E-02-3.65E+01	IA1-3	0-0.5	2.10E+00	1.52E-02-4.18E+00	1.33E+00	2.31E+00	95% KM (BCA) UCL
U-235	pCi/g	261	247	7.41E-02-2.92E+00	IA1-3	0-0.5	7.22E-01	4.05E-02-1.17E+00	1.89E-01	1.49E-01	95% KM (t) UCL
U-238	pCi/g	261	33	4.68E-01-3.65E+01	IA1-3	0-0.5	2.15E+00	3.27E-02-4.18E+00	1.50E+00	2.38E+00	95% KM (BCA) UCL
EU5 (Entire Landfill)- All Depths - Combined Soil and Sediment											
AM-241	pCi/g	903	884	3.15E-02-6.05E-01	IA4-16	12.8-13.8	1.70E-01	2.71E-02-2.12E+00	8.12E-02	3.74E-02	95% KM (t) UCL
BE-7	pCi/g	2	2	-	-	-	-	2.21E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	8.7-9.7	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	917	43	3.58E-01-3.49E+03	IA1-5	2-3	1.34E+01	1.40E-01-1.68E+01	1.66E+00	2.12E+01	95% KM (BCA) UCL
RA-228	pCi/g	917	8	2.82E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.07E+00	4.96E-02-2.27E+00	1.32E+00	1.09E+00	95% KM (BCA) UCL
TH-228	pCi/g	903	0	2.85E-01-3.96E+00	IA1-B12	17.8-18.8	9.30E-01	3.99E-03-1.51E+00	1.14E+00	9.60E-01	Use 95% Student's-t UCL
TH-230	pCi/g	899	0	3.41E-01-1.64E+03	IA1-5	2-3	5.30E+00	5.53E-03-1.01E+00	1.26E+00	1.43E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	917	0	2.42E-01-7.08E+00	IA1-B6	13.9-14.9	9.08E-01	3.30E-03-6.73E-01	1.02E+00	9.41E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	917	89	3.02E-02-2.05E+03	IA1-5	2-3	1.03E+01	1.52E-02-1.96E+01	1.50E+00	2.07E+01	95% KM (Chebyshev) UCL
U-235	pCi/g	917	851	7.41E-02-1.59E+02	IA1-5	2-3	8.60E+00	4.05E-02-5.11E+00	1.69E-01	1.59E+00	95% KM (Chebyshev) UCL
U-238	pCi/g	917	113	3.38E-01-2.05E+03	IA1-5	2-3	1.06E+01	3.27E-02-1.96E+01	1.62E+00	2.07E+01	95% KM (Chebyshev) UCL
EU5 (Entire Landfill)- All Water (Groundwater and Surface Water)											
RA-226	pCi/l	39	5	1.67E-01-1.18E+01	TWP-2	0-0	1.65E+00	4.98E-02-1.05E+00	-	3.81E+00	97.5% KM (Chebyshev) UCL
RA-228	pCi/l	39	27	3.52E-01-4.07E+00	TWP-4	0-0	1.31E+00	4.08E-01-3.47E+00	-	9.85E-01	95% KM (t) UCL
TH-227	pCi/l	22	22	-	-	-	-	1.49E-01-3.26E-01	-	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/l	39	34	9.37E-02-2.97E+01	TTLF-TREE-3-GW	0-0	9.29E+00	7.23E-02-9.69E+00	-	2.76E+00	95% KM (t) UCL
TH-230	pCi/l	39	14	7.33E-02-4.50E+01	TTLF-TREE-3-GW	0-0	2.81E+00	2.69E-02-1.43E+01	-	1.37E+01	99% KM (Chebyshev) UCL
TH-232	pCi/l	39	33	2.57E-02-2.54E+01	TTLF-TREE-3-GW	0-0	7.17E+00	1.78E-02-8.32E+00	-	2.41E+00	95% KM (t) UCL
TOTAL U	ug/l	18	2	1.01E+00-1.62E+02	SW/SD-05	0-0	3.82E+01	1.00E+00-1.06E+00	-	8.30E+01	95% KM (Chebyshev) UCL
U-234	pCi/l	39	2	3.70E-01-1.64E+02	TTLF-TREE-4-GW	0-0	2.16E+01	2.30E-02-4.00E+01	-	4.34E+01	95% KM (Chebyshev) UCL
U-235	pCi/l	39	11	8.94E-02-1.35E+01	TTLF-TREE-4-GW	0-0	1.93E+00	2.70E-02-4.33E+00	-	4.14E+00	97.5% KM (Chebyshev) UCL
U-238	pCi/l	39	2	3.35E-01-1.63E+02	TTLF-TREE-4-GW	0-0	2.00E+01	6.20E-02-3.98E+01	-	4.15E+01	95% KM (Chebyshev) UCL

3. Human Health Exposure Assessment

This section describes the exposure assessment used to define the site-specific considerations which will affect how people may come into contact with FUSRAP-related material present in the Landfill OU media.

Section 7 includes a consideration of how the environment and ecological receptors may be affected by FUSRAP-related material in Landfill OU media.

3.1. Characterization of Exposure Setting

A full description of the exposure setting of the Tonawanda Landfill was presented in Section 6.3 (and sub-sections) of the 2005 RI (USACE 2005); see also Section 1.1 and Figure 1-1 of this report. Pertinent excerpts from the 2005 BRA are included here.

The landfill is a 55-acre parcel located at the northern end of East Park Drive and is bounded by residential developments to the north and northwest, a railroad line to the east, and a right of way owned by National Grid to the south (Figure 1-1).

The border of the Tonawanda Landfill is fenced along the northern, eastern, and southern property boundaries. Along the northern boundary, which is adjacent to a residential neighborhood, there are breaks in the fence where some of the property owners have pushed back the fence to gain access to the site. In addition, even though most of the western boundary, which is bounded by a walking path next to Two Mile Creek, is fenced, there are also some breaks that allow access to trespassers on foot and on motorcycles. Vehicular traffic off East Park Drive is controlled by a gate that is locked after operating hours.

The Tonawanda Landfill is located in a Performance Standards Use District as defined by the Town of Tonawanda Town zoning law. The Tonawanda Town Code defines the purpose of the Performance Standards Use as follows: “The purpose of this district is to encourage and allow the most appropriate use of the land available now as well as approaching future commercial and industrial uses unhampered by restrictive categorizing, thus extending the desirability of flexible zoning, subject to change with changing condition” (Town of Tonawanda 1990). The eastern portion of the landfill is currently being capped by the Town of Tonawanda, which is bringing in material to cover the Am-241 contamination in that portion of the landfill. In the western portion of the landfill (i.e., the Landfill OU), no site activities are currently being conducted.

In the landfill there is evidence of the following trespasser activities: walking, riding dirt bikes, and building tree forts and fire pits. This evidence was noted especially in the area along the fence line and also in the vicinity of the stand of willow trees within the Landfill OU (see the vegetation sampling described in Section 2.4).

3.2. Definition of Exposure Units

EUs evaluated in this updated BRA are presented in Figure 3-1 through 3-3 and described in the following sections.

3.2.1. Exposure Unit 1 (Primary FUSRAP Investigation Area)

EU1 consists of the portion of the Landfill OU which encompasses the vicinity of the areas known as Areas A and B that were the focus of the USACE investigations in 2001 (USACE 2005), and includes the areas known as IA1 and IA2 from the 2010 sampling effort (USACE 2011), as shown in Figure 3-1. The same boundaries that were used for EU1 in the BRA from the 2005 RI are used in this updated BRA to allow for comparison between results. The approximate area of this EU is 37,000 m^2 (44,251 square yards [yd^2]).

3.2.2. Exposure Unit 2 (Remainder of the Landfill)

This EU encompasses all of the Landfill investigated by USACE in 2009/2010 outside of EU1, as shown in Figure 3-2. It is over 96,000 m^2 (114,815 yd^2) in area.

3.2.3. Exposure Unit 3 (100-Foot Buffer)

This EU corresponds to the distance of the set-back that is required to exist between the end of the slope of the landfill cover and the northern fence line, as shown in Figure 3-3. USACE was informed via a NYSDEC comment on the 2007 Proposed Plan that the landfill slope must end a minimum of 30 m (100 ft) before the fence line (see Sections 1.2 and 1.4.2). Any landfill material in this buffer zone, regardless of characteristics, must be removed to allow for proper grading of the landfill cover. For the construction worker, the EPC for this EU was conservatively set by only using samples that contained fill. Many of the samples were placed in locations that contained only topsoil and/or native soil, so those samples were excluded as they are not reflective of locations of waste placement in this buffer zone. However, the trespasser may traverse any portion of this EU, so all surficial soil samples within the 100-ft buffer were included in the EPC for the current exposures to the trespasser. This EU encompasses approximately 24,500 m^2 (29,302 yd^2) in area.

3.2.4. Exposure Unit 4 (Site-Wide Exposure Unit)

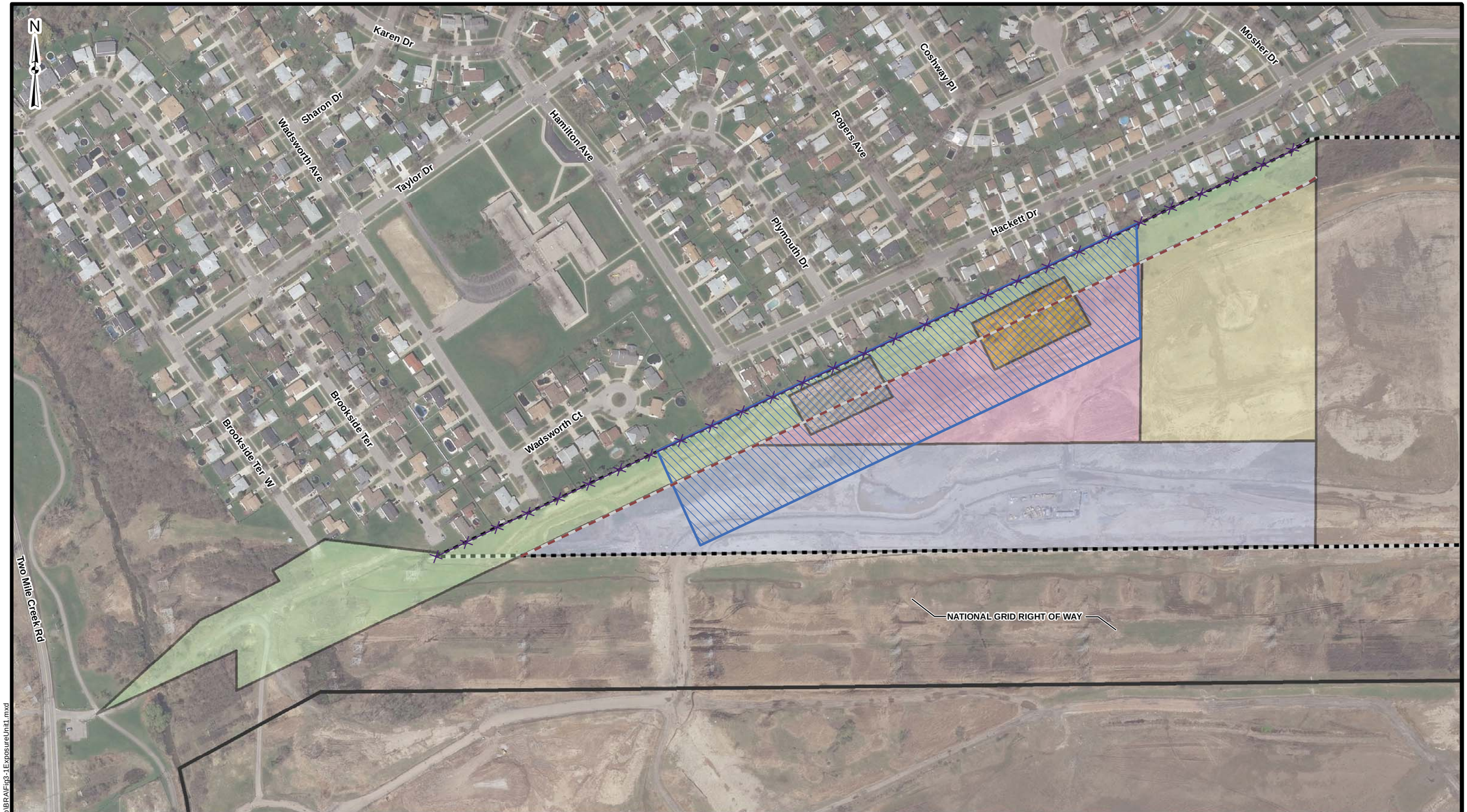
It is possible for someone to traverse the entire area of the landfill. The entire area of the landfill will be evaluated as a single, site-wide EU.

3.3. Conceptual Site Model

The conceptual site model (CSM) helps identify and visually organize potential exposure pathways and receptors and identifies those pathways which are complete and could lead to exposures to the COPCs at the site. The elements of the CSM are:

- Sources of contamination;
- Potential release mechanisms;
- Exposure media (e.g., air, soil, surface water, sediment, and groundwater);
- Exposure routes (e.g., ingestion, inhalation, direct exposure/external gamma); and
- Potential receptors.

Figure 3-4 is a pictorial CSM for the site showing source media, transport mechanisms, exposure media, exposure routes and potential human receptors.



Legend

- Exposure Unit 1
- Landfill Operable Unit Boundary
- Mudflats Operable Unit Boundary
- Fenceline
- Investigation Area 1
- Investigation Area 2
- Investigation Area 3
- Investigation Area 4
- Investigation Area 5
- Investigation Area 6
- 100ft Boundary Offset

0 125 250 500 Feet

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LANDFILL OPERABLE UNIT EXPOSURE UNIT 1

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TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 3-1

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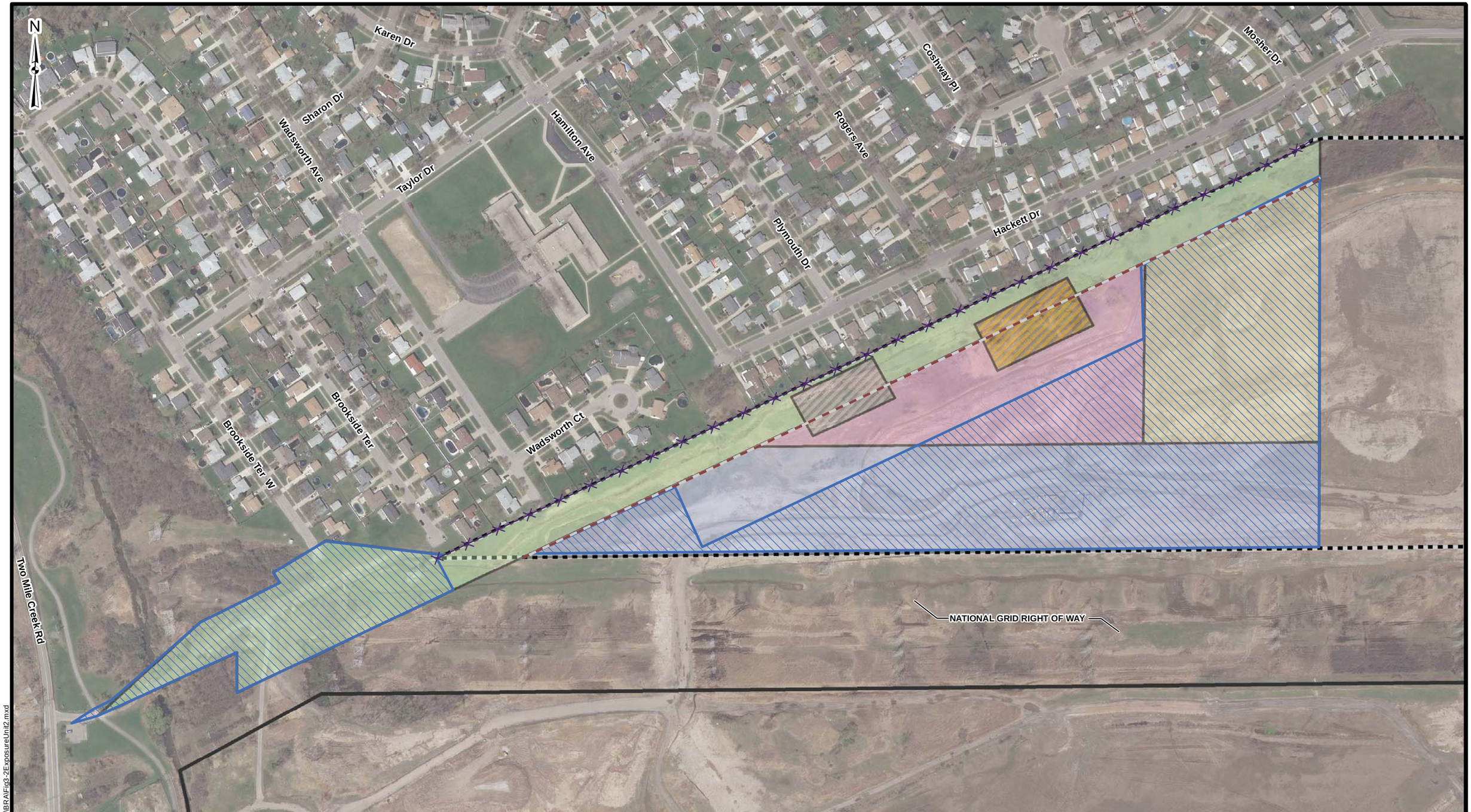

Legend

- Exposure Unit 2
- Landfill Operable Unit Boundary
- Mudflats Operable Unit Boundary
- Fenceline
- Investigation Area 1
- Investigation Area 2
- Investigation Area 3
- Investigation Area 4
- Investigation Area 5
- Investigation Area 6
- 100ft Boundary Offset

0 125 250 500 Feet

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LANDFILL OPERABLE UNIT EXPOSURE UNIT 2

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TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 3-2

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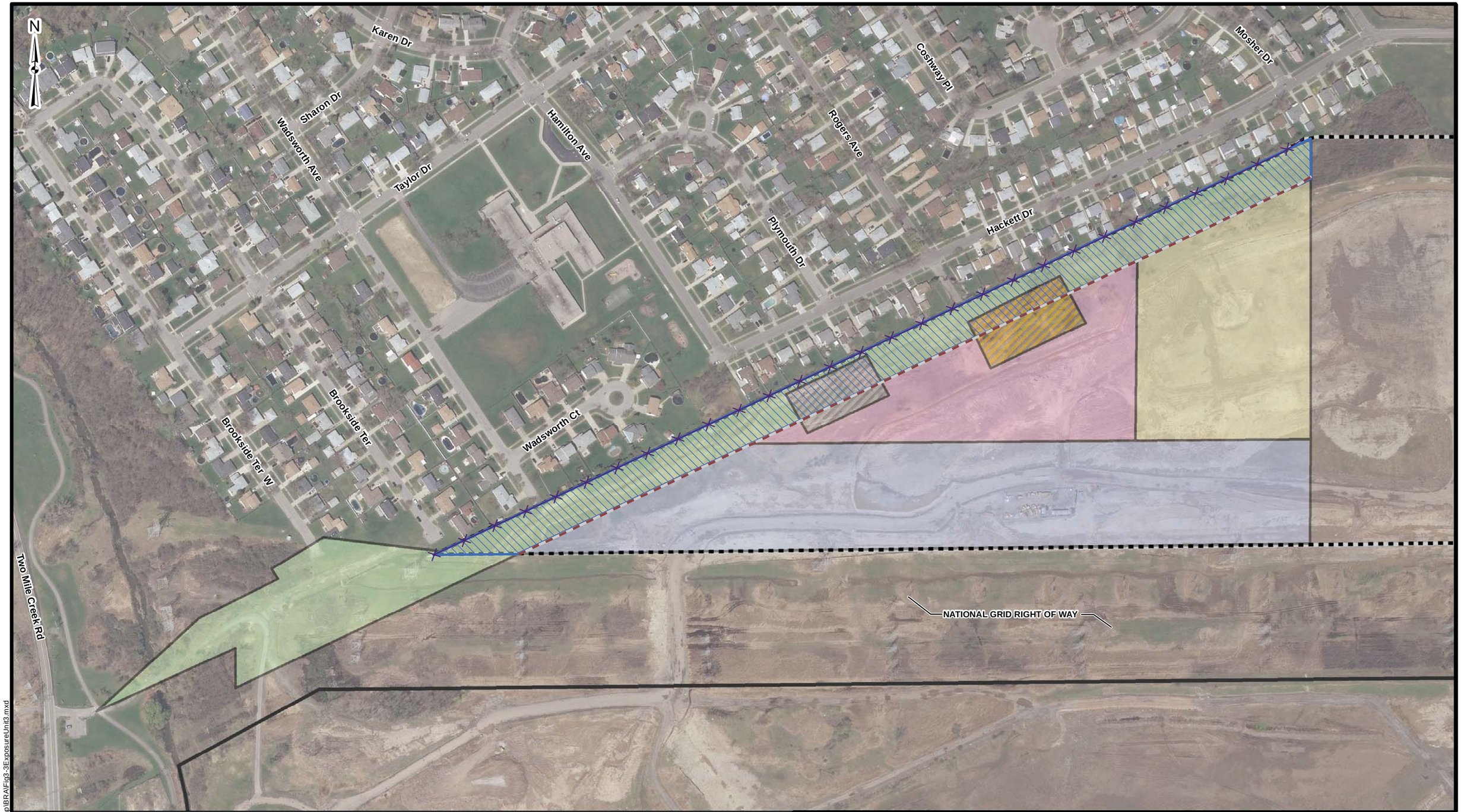

Legend

- Exposure Unit 3
- Landfill Operable Unit Boundary
- Mudflats Operable Unit Boundary
- Fenceline
- Investigation Area 1
- Investigation Area 2
- Investigation Area 3
- Investigation Area 4
- Investigation Area 5
- Investigation Area 6
- 100ft Boundary Offset

0 125 250 500 Feet

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LANDFILL OPERABLE UNIT EXPOSURE UNIT 3

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TONAWANDA LANDFILL
FUSRAP VICINITY PROPERTY
TONAWANDA, NEW YORK

FIGURE 3-3

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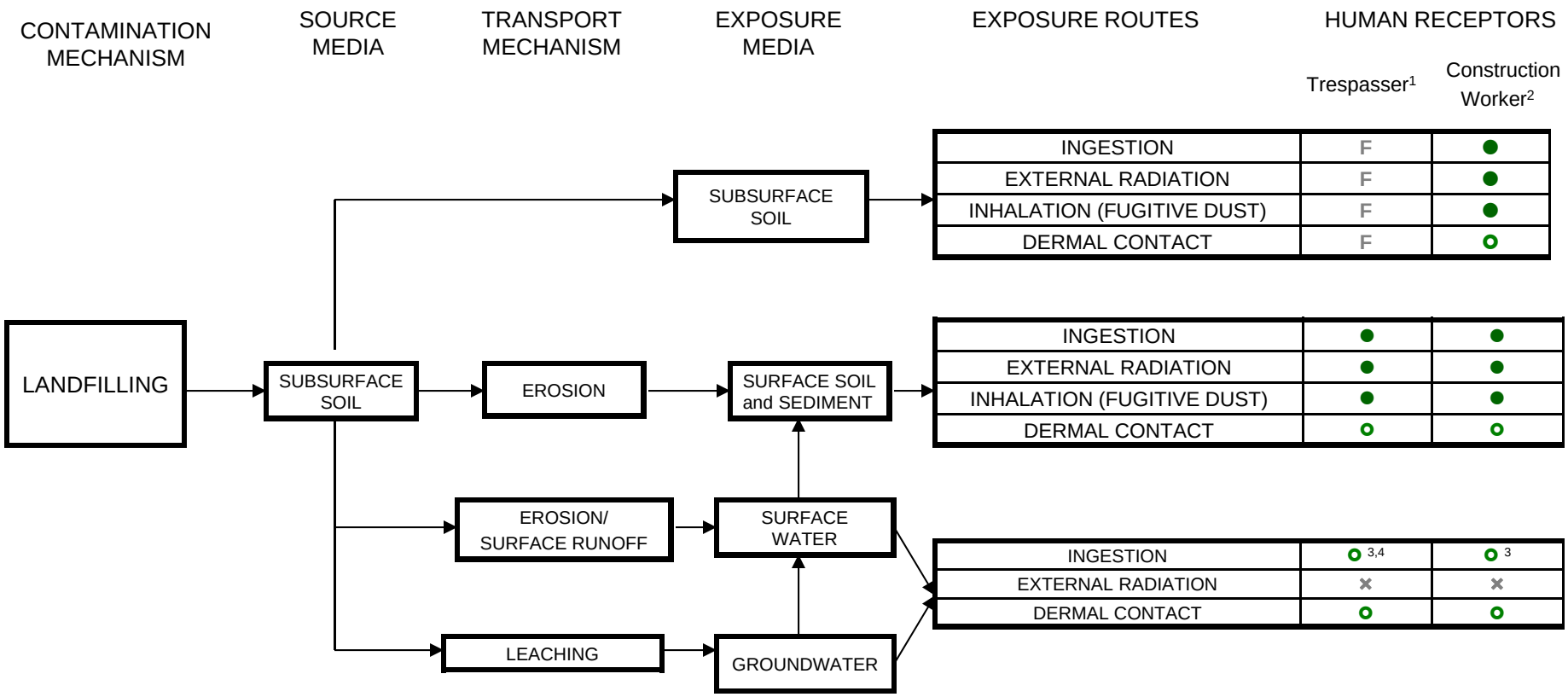
Figure 3-4
Conceptual Site Model - Pathways for Human Exposure in the Landfill OU



→ Major route

● Complete exposure pathway, major

○ Complete exposure pathway, minor

F Complete exposure pathway only in future if landfill is not covered

✖ Incomplete exposure pathway

Notes:

1. Current and future trespasser scenarios were assessed for adult and youth receptors.
2. Adult Construction worker evaluated for the 100 foot buffer at edge of landfill.
3. Trespassers and Workers were assumed to have only incidental contact with surface and/or shallow groundwater (which may seep to surface) while traversing ditches, dealing with the leachate collection system, and/or excavating.
4. Only the youth trespasser has contact with water via contact with ditches. The adult is assumed to avoid stepping in wet areas.

3.3.1. Source of Contamination

Although it is not known exactly when or how, it appears that FUSRAP-related material was placed within the Town of Tonawanda Landfill. The landfill was originally a quarry, so materials disposed there were placed over and within the native material, rather than inside an engineered cell. These land filling activities resulted in contamination of soil and other site media.

3.3.2. Potential Release Mechanisms

Release mechanisms that allow for constituent migration from a source medium (soils) to a secondary medium (air, surface water, sediments, or groundwater) and/or through a contaminated medium can potentially include the following, as well as others:

- Erosion of surface soils, exposing material that has been deposited into the Landfill OU;
- Release of surface soil dust contaminated with radionuclides into the air;
- Erosion of surficially contaminated soils via surface runoff, affecting sediments and surface water;
- Leaching of constituents from soil into groundwater;
- Transpiration of groundwater to the root zone of trees; and
- Seepage of groundwater to surface water.

3.3.3. Exposure Media

Receptors may be exposed to constituents by contact with site media or as the result of contaminant migration away from the source into other media. The source media for the Tonawanda Landfill OU include soil (surface and subsurface), sediment, and site water (groundwater and surface water).

Because groundwater is shallow and linked to surface water via seepage, all on-site water (both groundwater and surface water collected on-site) will be evaluated as a single exposure medium. Site water is not used as a source of potable drinking water, nor is there evidence that any wells are in use for drinking water purposes in this area due to the availability of fresh drinking water from off-site sources (i.e., the upper Niagara River). Furthermore, as mentioned in Section 1.3.3.2, FUSRAP-related material was not found in samples of residential basement sump water. Some receptors, however, (such as children playing on the Landfill OU or construction workers involved in the landfill closure) may have some incidental contact with site water. This may occur when people traverse the ditch that exists along the northern end of the Landfill OU, or if construction workers excavate within the 100-ft buffer zone. Maintenance workers who work with the leachate collection system that will be installed as the landfill is closed may also incur incidental contact with site water.

3.3.4. Current and Potential Future Human Receptors and Exposure Routes

All of the exposure pathways, receptors, media, and scenarios that were evaluated in the updated BRA are presented in the CSM (Figure 3-4). The updated BRA evaluates the risk to human receptor populations that are reasonably anticipated to be exposed to FUSRAP-related material. Both current and potential future land-use scenarios were evaluated. The site is currently an uncapped landfill in the areas of the FUSRAP-related material. Under the current land-use scenario, on-site receptors include an adult or youth trespasser on the landfill. The Town is

currently capping other areas of the landfill and will eventually close out the area subject to this FUSRAP investigation. As part of this anticipated closure, NYSDEC landfill regulations require a 100-ft buffer between the end of the landfill cap and the edge of the property (fence line). Therefore, as part of the "near future" exposure, a construction worker scenario is also evaluated for exposure to the material which currently exists within this 100-ft buffer.

USACE is also evaluating future baseline risks to exposure to deeper material in the Landfill OU because no formal closure plan has yet been shared by the Town of Tonawanda with USACE regarding the capping and maintenance activities in the Landfill OU. The most recent characterization of the source term in the Landfill OU indicated that the contamination generally begins below 61 cm (2 ft) of cleaner (less contaminated) surface soil. Exposure to the deeper buried subsurface contamination may occur if the cleaner surface soil in this area of the landfill erodes or is otherwise removed, i.e., if the landfill is not capped. The future baseline risk assessment will assume that the cleaner 61 cm (2 ft) of surface soil which covers the deeper contamination is allowed to erode over a 1,000 year evaluation period. The 61 cm (2 ft) of cleaner material is modeled to erode over time using the Residual Radioactivity computer code (RESRAD) default erosion rate of 1 millimeter (mm) per year, or 1 m per 1,000 years. After 300 to 600 years, the top 61 cm (2 ft) of cleaner material will have eroded and exposure to the deeper contamination would be possible if this cleaner surface is not somehow maintained. The future baseline risk assessment evaluates this "no controls in place" scenario to assess potential long-term "baseline" risks.

A description of each human receptor category and the corresponding exposure pathways is presented below. A summary overview of the major receptor-specific factors of the exposure assessment is presented in Table 3-1.

3.3.4.1. Trespasser (current use) or Recreational User (potential future use)

There are several openings in the fence that separates the Landfill OU from the adjacent residential neighborhood, and the grass is often mowed in an area within the Landfill OU just inside this fence. It is evident that people walk, ride bikes, and walk dogs in this area of the landfill. As noted in Section 3.1, there is evidence of a tree fort and fire pit in the vicinity of the willow trees. In further support of these observations of activity, several community members provided comments on the Proposed Plan indicating that children traverse the landfill on the way to the nearby Riverview Elementary School (USACE 2007b). Therefore, adult and youth trespasser will be evaluated as potential human receptors, for both the current and reasonable future land use for the Landfill OU. In the future, recreational use of the landfill may be a sanctioned land use.

Specifically, current exposure pathways for this receptor include:

- Inhalation of fugitive dust from surface soil and dry sediment;
- Incidental ingestion of surface soil, sediment, and surface/groundwater;
- External gamma exposure to surface soil and dry sediment; and
- Dermal contact with surface soil, surface water, sediment and surface/groundwater (considered as a minor complete pathway for evaluating the chemical toxicity of uranium metal).

Table 3-1
Key Receptor-Specific Input Parameter Values for the Exposure Assessment

Receptor	Relevant Exposure Units	Exposure Pathways	Depth/ Thickness of contamination (feet)	Exposure Duration (years)	Exposure Frequency (fraction of time in exposure unit)	Soil Ingestion Rate (mg/day)	Inhalation Rate (m^3/hour)	Water Ingestion Rate and Frequency (L/day and days/week)
Recreational / Trespasser (2005 BRA, parameters provided for information)	• EU 1	• External gamma • Inhalation • Soil ingestion	2	30	17 min/day, 350 days/yr	100	1.6	Not evaluated
Trespasser (2012 Updated BRA)	• EU 1 • EU 2 • EU 3 (100-ft buffer needed at edge of landfill cap) • Site-wide	• External gamma • Inhalation • Soil and sediment ingestion • Water ingestion - incidental	2*	12 (youth) + 30 (adult)	116 minutes/day, 350 days/yr (youth) + 17 min/day, 350 days/yr (adult)	100	1.4 (youth) 1.6 (adult)	0.02 L/day, 2 days/week (youth only)
Construction Worker (2012 Updated BRA)	• EU 3 (100-ft buffer needed at edge of landfill cap)	• External gamma • Inhalation • Soil and sediment ingestion • Water ingestion - incidental	To Native / Average Depth of contamination	1	8 hr/day, 250 day/yr (work year)	480	1.3	0.02 L/day, 2 days/week

* These scenarios will be evaluated for current and also future time periods. The future evaluation will assume that the cleaner two feet of surface soil will have eroded (i.e., if the landfill were not closed/capped) and exposure to the deeper, greater levels of radioactivity could occur.

Future potential exposure pathways for a trespasser or recreational user include additional exposure to subsurface soil (via the same complete exposure pathways above for surface soil). This could occur if the landfill is not capped, or if the cap is not properly maintained.

This receptor is assumed to have exposure to all areas of the landfill (EUs 1, 2, 3, and 4).

Two age groups were considered for this receptor: adult and youth. For the purposes of this assessment, "youth" is defined as a school-aged child, from 6 to 18 years old. For assessing ILCR, the youth and the adult risks will be considered to be cumulative. This trespasser is assumed to be someone who lives in the neighborhood adjacent to the Landfill OU. The upper 90th percentile of residence time in the community of 300 homes that neighbor the landfill is 42 years (Section 1.4.3.1). This will be used as the total exposure duration for the trespasser, and it will be assumed that this exposure duration is broken down into 12 years as a youth and 30 years as an adult. The time spent outdoors on the Landfill OU for the youth (116 minutes per day, 350 days per year) is the recommended value for average total time spent outdoors for ages 6 through 16 years (EPA 2008, Table 6-1). This average value for total time outdoors also corresponds well to the upper 95th percentile of time spent playing on grass or dirt (which was approximately 120 minutes per day for exposure to either grass or dirt, EPA 2008). The time spent outdoors for the adult on the Landfill OU (15 minutes per weekday and 23 minutes per weekend day, 350 days per year) is the average time spent outdoors for adults (EPA 1997a, Table 5-9). Use of these values equates to the receptor spending all of the time they spend outdoors in a year directly on the Landfill OU itself and nowhere else.

Someone living on the Landfill OU (i.e., a residential receptor) will not be explicitly evaluated, as the reasonable future land-use of the landfill would preclude this use. However, the amount of exposure to landfill contaminated media assumed for the trespasser in this evaluation is more than what is typically assumed for transient use of a recreational facility (i.e., it is akin to evaluating the Landfill OU as an extension of residents' yards). The characterization of risks for this receptor should inform project decisions which are protective of the residential community adjacent to the Landfill OU. In addition, a future use scenario was evaluated for this receptor which assumes no maintenance of the currently cleaner surface soil. If the cleaner surface soils are not maintained (i.e., allowed to erode or degrade over time), then exposure to the deeper buried levels of subsurface contamination may be possible for someone trespassing or traversing the Landfill OU.

3.3.4.2. Construction Worker

The construction worker receptor is evaluated to ascertain potential risks incurred when the final landfill slope is graded to include a minimum 100-ft buffer between the edge of the landfill and the property (fence) line. Previous investigations at the Landfill OU have identified areas along the northern boundary where general landfill waste materials are known to exist in very close proximity to, and in some locations, up to the north property line. The Town of Tonawanda is currently capping this Landfill in accordance with NYCRR360. This landfill closure regulation specifies that a minimum horizontal separation distance of 30 m (100 ft) be maintained between deposited solid waste and the property line. Therefore, all waste buried in this area will need to be excavated to a minimum distance of 30 m (100 ft) south of the property line. As indicated in the NYSDEC comments on the 2007 Proposed Plan,

> "Excavated materials will be placed within the landfill footprint to be covered by the final cap. In order to facilitate this requirement and to allow for the Town to plan for the landfill closure, the Department requested that the Town's consultant prepare an updated conceptual fill plan. This plan identifies the proposed lateral limits and elevation grades for the final configuration of the landfill. The conceptual fill plan was submitted to the Department on, May 10, 2007… The plan as developed provides for a waste free, buffer area varying from 100 feet to approximately 200 feet along the north-northwest area of the landfill property. Thus, most, if not all of the MED wastes in Areas A and B of the landfill will need to be removed. Excavation of buried wastes within this buffer zone will be required for proper closure of the landfill. All excavated waste, including MED materials located in the identified FUSRAP area, will need to be relocated either into the Tonawanda Landfill footprint or to an approved offsite disposal facility, depending on the concentration of radioactive materials in the excavated material."

The construction worker will only be evaluated for exposure to fill material in EU3 (100-ft buffer).

Specifically, exposure pathways for a construction worker include:

- Inhalation of fugitive dust from surface and subsurface soil and dry sediment
- Incidental ingestion of surface and subsurface soil, sediment, and water (ground and surface water)
- External gamma exposure to surface and subsurface soil and dry sediment
- Dermal contact with surface and subsurface soil, surface water, sediment and surface/groundwater (considered as a minor complete pathway for evaluating the chemical toxicity of uranium metal)

This worker was assumed to be involved in construction activities for a full year (8 hours per day, 250 work days per year). S/he would have elevated inhalation and soil ingestion rates, commensurate with intense activities associated with moving soil and soil-like material.

3.4. Quantification of Exposure

3.4.1. Development of Exposure Point Concentrations for Environmental Media

In order to quantify exposure to each receptor, EPCs, or the estimate of the constituent concentration a receptor is likely to come in contact with over the duration of exposure, were calculated. The EPCs were determined from measured concentrations in environmental media (soil, sediment, surface water and groundwater). For all media, EPCs were calculated on an EU-specific basis. For purposes of this updated BRA, the data used for developing the EPCs for the surface soil interval includes all samples taken within the top 2 ft of ground surface (including those identified as "sediment"). The surface soil EPCs were used for evaluating the current trespasser exposure scenario. The EPCs for total soil include all samples taken from the surface down to native soil (i.e., bottom of the coring). The average depth to native soil encountered in

each EU is presented in Table 3-2; as recorded in the boring log with all voids included, with only the top void removed, and with all voids removed. The water EPCs were determined by merging all groundwater sample results with surface water sample results from on-site locations, because groundwater is shallow and linked to surface water via seepage. All site water (both surface and groundwater) will be evaluated as a single exposure medium. Off-site surface water concentrations measured in 2011 were not considered for human health exposures, although they were evaluated for potential ecological exposures (see Section 7). Data for every medium were extracted from the database and entered into ProUCL version 4.1 (EPA 2010). This software includes statistical methods that can be used to estimate EPC terms for data sets with non-detect observations. Specifically, most of the statistical methods described and recommended in the *Guidance Document to Compute 95% Upper Confidence Limits* (EPA 2002b) have been incorporated into ProUCL. The ProUCL program recommended the best 95% upper confidence limit (UCL95) of the mean to use for each data set. The recommended UCL95 was chosen as the EPC, and is presented in Table 3-3.

3.4.2. Exposure Pathway Specific Intakes

3.4.2.1. Quantification of Intake for Soil Exposures Using RESRAD

For radiological contaminants, exposures to residual contamination in soil were estimated using RESRAD Version 6.5 along with standard parameter values identified for various exposure conditions (EPA 1997a, EPA 1989b and ANL 2001). For uranium toxicity, exposures were estimated using standard Risk Assessment Guidance for Superfund (RAGS) (EPA 1989b) exposure equations and the same receptor-specific parameter values are used in RESRAD modeling. Site-specific exposure parameter values were used to the greatest extent possible, otherwise, recommended values from EPA or RESRAD guidance were used. For this CERCLA exposure assessment, intake variables for given pathways were selected to estimate the RME conditions. The RME is the maximum exposure that is reasonably expected to occur at the site and represents a conservative estimate of potential exposure. RME exposure parameters used in RESRAD are presented in Table 3-4. Table 3-1 summarizes key receptor-specific input parameter values.

Although RESRAD includes a component that estimates leaching of radioactivity from a soil source term to groundwater, this component was not utilized for the purposes of this assessment. Instead, the actual measured concentrations of radioactivity in site water were used to evaluate any direct exposure to water. This eliminates the removal of the soil source term as it leaches to groundwater by RESRAD, thus allowing for a more representative estimation of potential risks from direct exposure to soil. Since site water is not considered potable, exposure to soil is assumed to be much greater than potential exposure to water in the Landfill OU. Thus, it is more conservative to not allow the soil source term to leach and be removed from the system. It also eliminates any uncertainty in relying on modeled groundwater concentrations by utilizing actual site-specific groundwater measurements.

Table 3-2
Average Depth to Native Soil in Each Exposure Unit

Exposure Unit	Average Depth to Top of Native Soil (feet)		
	As Recorded	Top Void Removed	All Voids Removed
EU1 (FUSRAP Area)	14.5	13.7	7.1
EU2 (Rest of Landfill)	24.1	23.3	11.0
EU3 (100-ft Buffer)	4.2	3.6	2.9
Localized Area of Elevated Radium[1]	20.7	19.6	10.0

1. See Section 2.5.1.3 and Figures 2-4 and 2-5

Table 3-3
Summary of Radiological Exposure Point Concentrations (EPCs)

Nuclide	Background SB[1] (pCi/g)	Background SS[2] (pCi/g)	EU1 SB[1] (pCi/g)	EU1 SS[2] (pCi/g)	EU2 SB[1] (pCi/g)	EU2 SS[2] (pCi/g)	EU3 SB[1] (pCi/g)	EU3 SS[2] (pCi/g)	Site-Wide SB[1] (pCi/g)	Site-Wide SS[2] (pCi/g)	Site-Wide Water (pCi/L)
Ac-227[3]	0.169	0.189	2.66	0.22	0.116	0	0.167	0.156	1.59	0.149	-
Pa-231[3]	0.169	0.189	2.66	0.22	0.116	0	0.167	0.156	1.59	0.149	-
Pb-210[4]	1.66	1.4	51.2	3.54	2.14	2.36	3.39	2.94	21.2	2.99	-
Ra-226	1.66	1.4	51.2	3.54	2.14	2.36	3.39	2.94	21.2	2.99	3.81
Ra-228	1.32	1.53	1.25	1.08	0.915	0.902	1.28	1.08	1.09	1.01	0.985
Th-228	1.14	1.06	1.09	0.899	0.801	0.778	1.11	0.952	0.96	0.854	2.76
Th-230	1.26	1.12	23.6	1.3	0.995	1.02	1.46	1.27	14.3	1.18	13.7
Th-232	1.02	1.02	1.16	0.874	0.779	0.779	1.06	0.929	0.941	0.832	2.41
U-234	1.5	1.33	34.5	2.96	1.32	1.39	2.27	2.06	20.7	2.31	46.4
U-235	0.169	0.189	2.66	0.22	0.116	0	0.167	0.156	1.59	0.149	4.14
U-238	1.62	1.5	34.5	3.0	1.33	1.41	2.28	2.11	20.7	2.38	41.5
Total Uranium	**Background SB[1] (mg/kg)**	**Background SS[2] (mg/kg)**	**EU1 SB[1] (mg/kg)**	**EU1 SS[2] (mg/kg)**	**EU2 SB[1] (mg/kg)**	**EU2 SS[2] (mg/kg)**	**EU3 SB[1] (mg/kg)**	**EU3 SS[2] (mg/kg)**	**Site-Wide SB[1] (mg/kg)**	**Site-Wide SS[2] (mg/kg)**	**Site-Wide Water (μg/L)**
	4.86	4.5	103.5	9.0	3.99	4.23	6.84	6.33	62.1	7.14	125.0

1. Includes all sample results from all depths below ground surface
2. Includes sample results from top two feet below ground surface only, with top void removed
3. There are no sample results for Ac-227 or Pa-231, so assumed to be in equilibrium with (equal to) U-235
4. There are no sample results for Pb-210, so assumed to be equal to Ra-226

Table 3-4
Reasonable Maximum Exposure RESRAD Parameters for Radiological Exposures

RESRAD Parameter	Units	Value	Receptor	Comment/Reference
Area of contaminated zone	m^2	10,000	All	Results are insensitive to areas above 10,000 m^2 and area of each EU is greater than 10,000
Thickness of contaminated zone	m	2	Al1	RESRAD default; agrees with average minimum depth to native in EU1 if voids are ignored in core (See Table 3-4)
Initial contamination penetrate the water table?	Yes/no	Yes	All	New feature in version 6.5; affects saturated zone assumptions
Contaminated fraction below water table	Unitless	0.85	All	Site-specific seasonal average from boring logs
Length parallel to aquifer flow	m	100	All	RESRAD default
Time since placement of material	yr	0	All	RESRAD default
Cover depth	m	0.0	Trespasser & Construction	Current conditions (uncapped landfill)
Density of cover material	g/m^3	NU 1.5	Trespasser (current) Trespasser (future)	No cover assumed for current Trespasser scenario. Cleaner topsoil erosion is evaluated for future use if Landfill is not capped and closed.
Cover depth erosion rate	m/yr	0.001	Trespasser (future)	RESRAD default; Evaluates result if cleaner topsoil is not maintained and exposure to deeper contamination could occur
Density of contaminated zone	g/m^3	1.45	All	Value reflects sandy to silty loam, derived from K values from wells in waste material as presented 2005 RIR Table 3.1
Contaminated zone erosion rate	m/yr	0.001	All	RESRAD default
Contaminated zone total porosity	unitless	0.45	All	DOE 1993
Contaminated zone field capacity	unitless	0.2	All	RESRAD default
Contaminated zone hydraulic conductivity	m/yr	2270	All	Average of K values for waste on 2005 RIR Table 3.1
Contaminated zone b parameter	unitless	4.0	All	Reflects a more permeable silty to sandy matrix
Average annual wind speed	m/sec	2	All	RESRAD default
Humidity in air	g/m^3	NU	All	Not used
Evapotranspiration coefficient	unitless	0.78	All	Derived from site-specific topographic characteristics and runoff coefficient
Precipitation	m/yr	0.98	All	30-yr average of Buffalo, NY
Irrigation	m/yr	0.2	All	RESRAD default
Irrigation mode	unitless	Overhead	All	RESRAD default
Runoff coefficient	unitless	0.5	All	Based on RESRAD runoff coefficient calc derived from site-specific characteristics (topography & soil)
Watershed area for nearby stream or pond	m^2	1.00E+06	All	RESRAD default

Table 3-4
Reasonable Maximum Exposure RESRAD Parameters for Radiological Exposures

RESRAD Parameter	Units	Value	Receptor	Comment/Reference
Accuracy for water/soil computations	unitless	0.001	All	RESRAD default
Saturated zone density	g/m^3	NU	All	No saturated zone if contamination exists in water table
Saturated zone total porosity	unitless	NU	All	No saturated zone if contamination exists in water table
Saturated zone effective porosity	unitless	NU	All	No saturated zone if contamination exists in water table
Saturated zone field capacity	unitless	NU	All	No saturated zone if contamination exists in water table
Saturated zone hydraulic conductivity	m/yr	NU	All	No saturated zone if contamination exists in water table
Saturated zone hydraulic gradient	unitless	NU	All	No saturated zone if contamination exists in water table
Saturated zone b parameter	unitless	NU	All	No saturated zone if contamination exists in water table
Water table drop rate	m/yr	NU	All	Not used since contamination exists in water table
Well pump intake depth (m below water table)	m	NU	All	Not used since contamination exists in water table
Model: Nondispersion (ND) or Mass-Balance (MB)	unitless	ND	All	RESRAD default
Well pumping rate	m^3/yr	250	All	RESRAD default
Number of unsaturated zone strata*	unitless	0	All	Not used since contamination exists in water table
Unsaturated zone thickness	m	NU	All	Not used since contamination exists in water table
Unsaturated zone soil density	g/m^3	NU	All	Not used since contamination exists in water table
Unsaturated zone total porosity	unitless	NU	All	Not used since contamination exists in water table
Unsaturated zone effective porosity	unitless	NU	All	Not used since contamination exists in water table
Unsaturated zone field capacity	unitless	NU	All	Not used since contamination exists in water table
Unsaturated zone b parameter	unitless	10	All	Not used since contamination exists in water table
Unsaturated zone hydraulic conductivity	m/yr	NU	All	Not used since contamination exists in water table
Distribution coefficient - actinium	cm^3/g	2,400	All	RESRAD default – Clay*
Distribution coefficient - protactinium	cm^3/g	2,700	All	RESRAD default – Clay*
Distribution coefficient – lead	cm^3/g	550	All	RESRAD default – Clay*
Distribution coefficient - radium	cm^3/g	9,100	All	RESRAD default – Clay*
Distribution coefficient - thorium	cm^3/g	5,800	All	RESRAD default – Clay*
Distribution coefficient - uranium	cm^3/g	1,600	All	RESRAD default – Clay*
Distribution coefficient – others, if applicable	cm^3/g	TBD	All	Clay assumed (DCH, Table 32.1)*
Inhalation rate	m^3/yr	14,000 12,400 14,000	Trespasser (adult) Trespasser (youth) Construction worker	Assuming moderate rate of 1.6 m^3/hr (EFH, Table 5-23) Average value short-term moderate intensity activity for children ages 6 - 16 (Child EFH, Table 6-1) = 1.41 m^3/hr Assuming moderate rate of 1.6 m^3/hr (EFH, Table 5-23)

Table 3-4
Reasonable Maximum Exposure RESRAD Parameters for Radiological Exposures

RESRAD Parameter	Units	Value	Receptor	Comment/Reference
Mass loading for inhalation	g/m^3	1.8E-04 3.0E-05	Construction worker All others	DCH with 30% respirable fraction (Paustenbach 1989) NRC 1992 with 30% respirable fraction (Paustenbach 1989)
Exposure duration	yr	42 12 30 1	Trespasser – total duration Trespasser (youth) Trespasser (adult) Construction worker	Site-specific residence time; upper 90th percentile of total time in residence in the population of 300 homes in neighborhood of landfill Duration of child/youth exposure Duration of adult exposure Assuming construction activities during one calendar year
Shielding factor, inhalation	unitless	0.4	All	RESRAD default
Shielding factor, external gamma	unitless	0.4	All	60% shielding per SSG-2000 for all indoor receptors
Fraction of time spent indoors	unitless	0.0	All	No indoor exposures assumed for Landfill receptors
Fraction of time spent outdoors (on site on the landfill itself)	unitless	0.012 0.077 0.228	Trespasser (adult) Trespasser (youth) Construction worker	15 min/weekday and 23 min/weekend day (EFH Table 15-9) 116 minutes/day, 350 days/year (Child EFH, Table 6-1, Recommended value mean total time outdoors for ages 6 – 16) 40 hours/week for 50 weeks/year
Shape factor flag, external gamma	unitless	1	All	RESRAD default
Fruits, vegetables and grain consumption	kg/yr	NU	All others	Not used
Leafy vegetable consumption	kg/yr	NU	All others	Not used
Milk consumption	L/yr	NU	All others	Not used
Meat and poultry consumption	kg/yr	NU	All others	Not used
Fish consumption	kg/yr	NU	All	Not used
Other seafood consumption	kg/yr	NU	All	Not used
Soil ingestion rate	g/yr	36.5 36.5 175.2	Trespasser (adult) Trespasser (youth) Construction worker	100 mg/day for RME adult rate (RAGS) 100 mg/day recommended daily soil+dust ingestion for 6 – 21 year olds (Child EFH, Table 5-1) 480 mg/day for RME assuming outdoor summer activities (EFH, Table 4-16)
Depth of soil mixing layer	m	0.15	All	RESRAD default
Drinking water intake	L/yr	NU	All others	Not used; water non-potable
Contamination fraction of drinking water	unitless	1	All	Not used

Table 3-4
Reasonable Maximum Exposure RESRAD Parameters for Radiological Exposures

RESRAD Parameter	Units	Value	Receptor	Comment/Reference
Contamination fraction of household water	unitless	1	All	Not used
Contamination fraction of livestock water	unitless	1	All	Not used
Contamination fraction of irrigation water	unitless	0	All	Not used
Contamination fraction of aquatic food	unitless	NU	All	Not used
Contamination fraction of plant food	unitless	NU	All	Not used
Contamination fraction of meat	unitless	NU	All	Not used
Contamination fraction of milk	unitless	NU	All	Not used
Pathway – external gamma	unitless	Active	All	Assumed complete for all receptors
Pathway – inhalation (w/o radon)	unitless	Active	All	Assumed complete for all receptors
Pathway – plant ingestion	unitless	Inactive	All	Assumed incomplete for all receptors
Pathway – meat ingestion	unitless	Inactive	All	Assumed incomplete for all receptors
Pathway – milk ingestion	unitless	Inactive	All	Assumed incomplete for all receptors
Pathway – aquatic foods	unitless	Inactive	All	Assumed incomplete for all receptors
Pathway – drinking water	unitless	Inactive	All	Assumed incomplete for all receptors
Pathway – soil ingestion	unitless	Active	All	Assumed complete for all receptors
Pathway – radon	unitless	Inactive	All	Inactive for all receptors

* Saturated and unsaturated zone parameters are only relevant for groundwater-related pathways. Groundwater pathway parameters are listed only for informational purposes. The soil to groundwater leaching pathway will be turned off in RESRAD so as to avoid removal of the soil source term via leaching to groundwater. Ground and surface water exposure pathways will be evaluated separately using site-specific measured concentrations of radionuclides in site water.

DCH = Data Collection Handbook for RESRAD (ANL 1993)
EFH = Exposure Factors Handbook (EPA 1997)
RAGS = Risk Assessment Guidance for Superfund, specifically Volume 1 Part B (EPA 1991)
Child EFH = Child-Specific Exposure Factors Handbook (EPA 2008)
SSG-2000 = Soil Screening Guidance for Radionuclides: Technical Background Document (EPA 2000)
NU = not used

3.4.2.2. Quantification of Intake for Water Exposures

As stated above, estimation of intake for water exposures was accomplished by using standard RAGS equations (EPA 1989b), RME input parameter values (presented in Table 3-1), and concentrations of radionuclides measured in site water. Because groundwater is shallow and linked to surface water via seepage, all on-site water (both surface and groundwater) will be evaluated as a single exposure medium for human health. Off-site surface water sampling results were only evaluated for ecological exposures.

3.4.2.3. Quantification of Exposure for Chemical Toxicity of Uranium

In parallel to the above calculations estimating exposures to radioactive constituents in Landfill media, the exposure to uranium metal was also determined in order to characterize non-cancer health hazards. This was accomplished by using standard RAGS equations (EPA 1989b) as well as published specific activities (10 CFR 71 Appendix A) of the uranium isotopes 234, 235, and 238 to convert from activity measurements to mass units, then summing the masses of the individual isotopes to determine the mass of total uranium metal present in site media. The additional exposure parameter factor needed to quantify chemical toxicity (not used in characterizing radiation risks) is body weight. Adult receptors are assumed to weigh 70 kilograms (kg) (154 pounds [lb]) (EPA 1997a), and the youth receptor is assumed to weigh 44.3 kg (98 lb), which is the average of recommended values for children aged 6 through 16 years (EPA 2008, Table 8-1).

4. Human Health Toxicity Assessment

For radionuclide carcinogens, standard EPA values (cancer risk coefficients) are used to assess the increased probability (above the background rate) that an individual will develop cancer over a lifetime as a result of chronic exposures. This is also referred to as the ILCR, and is based on population statistics. The EPA notes that cancer risk is generally the limiting effect for sites contaminated with radionuclides such as the Landfill OU and suggests that radiation carcinogenesis be used as the sole basis for assessing human health risks (EPA 1989). This is consistent with recent information on the health risks for radiation exposures (NRC 2006), and this recommendation is being used in the CERCLA process for the Tonawanda Landfill OU. That is, the only health effect that is quantified in this updated BRA for exposures to radiation and radionuclides is the risk of developing cancer.

In addition, for radionuclides, an estimate of the annual radiation doses associated with exposures at the site was developed. This dual approach is applied for radionuclides because many radiation toxicity studies describe effects in terms of doses or dose rates delivered. Furthermore, most radiation protection standards are given in terms of radiation doses and dose rates, and organizations generally use doses to evaluate the effectiveness of their radiation protection programs. These doses can be calculated using standard dose conversion factors (DCFs).

Uranium is the only FUSRAP-related radionuclide for which chemical toxicity is also a concern, as uranium metal is also a kidney toxin. To assess non-carcinogenic chemical toxicity, a standard value that represents a daily “safe level” is used to indicate whether the potential exists for an individual to incur an adverse effect from chronic exposures; this value is a reference dose (Rfd).

All cancer risk coefficients, uranium Rfds, and DCFs used in this evaluation for FUSRAP-related radionuclides and their associated daughter products are presented in Table 4-1.

Table 4-1
Toxicity Criteria Used

Radiological Risk Coefficients										
Isotope	**Coefficient for Lifetime Cancer Risk Morbidity[1]**				**Dose Conversion Factor**			**Decay Factor**		
	Inhalation Slope Factor (l/pCi)	**Water Ingestion Slope Factor (l/pCi)**	**Soil Ingestion Slope Factor (l/pCi)**	**External Gamma (l/yr per pCi/g)**	**Inhalation[2] (mrem/pCi)**	**Ingestion[2] (mrem/pCi)**	**External[3] (mrem per pCi/g per yr)**	**Half-Life $T_{1/2}$ (yr)**	**Near Term (yr)**	**Long Term (yr)**
									1	**100**
Actinium-227	$2.13x10^{-7}$	$4.86x10^{-10}$	$6.53x10^{-10}$	$1.46x10^{-6}$	6.72	0.0148	2.21	21.8	1	0.042
Protactinium-231	$7.62x10^{-8}$	$1.73x10^{-10}$	$2.26x10^{-10}$	$1.39x10^{-7}$	1.28	0.0106	0.191	32,800	1	1.0
Lead-210	$3.08x10^{-8}$	$1.27x10^{-9}$	$3.44x10^{-9}$	$4.21x10^{-9}$	0.0232	0.00727	0.00611	22.3	1	0.045
Radium-226	$2.83x10^{-8}$	$3.86x10^{-10}$	$5.15x10^{-10}$	$8.49x10^{-6}$	0.0086	0.00133	11.2	1,600	1	0.96
Radium-228	$4.37x10^{-9}$	$1.04x10^{-9}$	$1.43x10^{-9}$	$4.53x10^{-6}$	0.00508	0.00144	6.04	5.80	1	$6.5x10^{-6}$
Thorium-228	$1.44x10^{-7}$	$3.00x10^{-10}$	$4.22x10^{-10}$	$7.76x10^{-6}$	0.345	0.000808	10.2	1.91	1	$1.7x10^{-16}$
Thorium-230	$3.40x10^{-8}$	$9.11x10^{-11}$	$1.19x10^{-10}$	$8.19x10^{-10}$	0.326	0.000548	0.00121	77,000	1	1.0
Thorium-232	$4.33x10^{-8}$	$1.01x10^{-10}$	$1.33x10^{-10}$	$3.42x10^{-10}$	1.64	0.00273	0.000521	$1.4x10^{10}$	1	1.0
Uranium-234	$2.78x10^{-8}$	$7.07x10^{-11}$	$9.50x10^{-11}$	$2.52x10^{-10}$	0.132	0.000283	0.000402	240,000	1	1.0
Uranium-235	$2.50x10^{-8}$	$7.18x10^{-11}$	$9.76x10^{-11}$	$5.43x10^{-7}$	0.123	0.000267	0.721	$7.0x10^{8}$	1	1.0
Uranium-238	$2.36x10^{-8}$	$8.71x10^{-11}$	$1.21x10^{-10}$	$1.14x10^{-7}$	0.118	0.000269	0.103	$4.5x10^{9}$	1	1.0

Chemical Toxicity for Noncarcinogenic Effects[4]
Oral Exposure

Chemical	Reference Dose, Chronic (mg/kg-d)	Confidence Level	Uncertainty Factor	Modifying Factor	Critical Effect
Uranium, soil. salt	0.003	Medium	1000	1	Kidney damage

1. Source: Federal Guidance Report 13, EPA 1999
2. Source: Federal Guidance Report 11, EPA 1988
3. Source: Federal Guidance Report 12, EPA 1993
4. Source: EPA Integrated Risk Information System for uranium, soluble salts, http://www.epa.gov/iris/subst/0421.htm

5. Human Health Risk Characterization

Risk characterization integrates the findings of the exposure assessment and toxicity assessment to estimate the likelihood that a receptor may experience an adverse effect as the result of exposure to COPCs (EPA 1989b). Risks were calculated using toxicity information and intakes calculated as part of the exposure assessment. Cancer risks and annual radiological doses for exposure to soil were assessed using the RESRAD program. Cancer risks and annual doses for exposure to water, as well as non-cancer hazards from exposure to uranium metal, were calculated using standard RAGS equations.

5.1. Carcinogenic Risk Characterization Results

The only carcinogenic FUSRAP COPCs at the site are the radionuclides. For these carcinogens, the ILCR was calculated for each EU using RME exposure assumptions. The resulting ILCRs were compared to the target risk range specified in the NCP (EPA 1990). The NCP specifies a target risk range of 10^{-6} to 10^{-4}; this range is equivalent to the probability that one additional person in a population of one million persons, to one additional person in a population of ten thousand persons, may develop cancer as the result of exposure to contaminants at a site. ILCRs below 10^{-6} are considered acceptable risks, while ILCRs above 10^{-4} are considered unacceptable risks. Risks between 10^{-6} and 10^{-4} fall into the NCP "acceptable risk range."

A summary of the ILCR results for the current and near-future exposure scenarios are presented in Table 5-1. For the trespasser, total risks range from $4x10^{-5}$ to $5x10^{-5}$ excess cancer risks for exposure to FUSRAP-related constituents in surface soils. Cancer risks for the potential construction workers are lower, at $1x10^{-5}$ for exposure to deeper fill areas in the 100-ft buffer EU. These risks are all within the acceptable risk range established in the NCP.

A summary of the ILCR results for the future exposure scenario are presented in Table 5-2. For future baseline exposures, if the 61 cm (2 ft) of cleaner surface soil is allowed to erode, risks may increase to $5x10^{-4}$ for the hypothetical recreational user. These risks could occur 600 years into the future, assuming that the RESRAD default erosion rate of 1 mm per year occurs at this site. These future baseline risks are above the acceptable risk range established in the NCP and warrant evaluation of remedial alternatives to mitigate these risks.

5.2. Radiological Dose Characterization Results

The updated BRA focuses on risk-based criteria (i.e., the target risk range of 10^{-6} to 10^{-4} as identified in the NCP), because those are the criteria used to determine if remedial action is required under CERCLA. However, the annual radiological dose rates (in millirem per year [mrem/yr]) were also calculated for exposure to the radiological COPCs at the site for informational purposes.

A summary of annual dose results for the current and near future exposure scenarios are presented in Table 5-3. For the trespasser, current projected total annual radiological doses for exposure to FUSRAP-related constituents in surface soils range from about one to two mrem/yr. For the construction worker exposed to deeper fill areas in the 100-ft buffer EU, the annual radiological dose is about 5 mrem/yr. These doses are much less than the 10 mrem/yr allowable guideline advocated by NYSDEC.

Table 5-1
Summary of Incremental Lifetime Cancer Risks for Current Conditions

Receptor	Year	Soils Risk by Exposure Unit[1,2]				Site-Wide Water Risk[2,3]
		EU1	EU2	EU3	Site-Wide	
Trespasser Adult[4]	0	$1x10^{-5}$	$1x10^{-5}$	$1x10^{-5}$	$1x10^{-5}$	
Trespasser Adult[4]	1,000	$1x10^{-5}$	$9x10^{-6}$	$1x10^{-5}$	$1x10^{-5}$	
Trespasser Youth[4]	0	$4x10^{-5}$	$3x10^{-5}$	$3x10^{-5}$	$3x10^{-5}$	$7x10^{-8}$
Trespasser Youth[4]	1,000	$3x10^{-5}$	$2x10^{-5}$	$3x10^{-5}$	$3x10^{-5}$	
Trespasser Total[4]	0	$5x10^{-5}$	$4x10^{-5}$	$5x10^{-5}$	$5x10^{-5}$	
Trespasser Total[4]	1,000	$4x10^{-5}$	$3x10^{-5}$	$4x10^{-5}$	$4x10^{-5}$	
Total Trespasser with Water	0	$5x10^{-5}$	$4x10^{-5}$	$5x10^{-5}$	$5x10^{-5}$	
Construction Worker[5]	0			$1x10^{-5}$		$2x10^{-8}$
Construction Worker[5]	1,000			$8x10^{-6}$		
Total Construction Worker with Water	0			$1x10^{-5}$		

1. Blank cells indicate that the receptor is assumed not to be exposed to this unit
2. Risks greater than $1x10^{-4}$ are indicated in bold
3. Combined ground and surface water exposure only evaluated for youth trespasser and construction worker (non-RESRAD calculation)
4. Exposure to surface soils only (0 ft – 2 ft bgs)
5. Exposure to total soils (0 ft – depth to native bgs)

Table 5-2
Summary of Incremental Lifetime Cancer Risks for Future Baseline Conditions

Receptor	Year	Soils Risk by Exposure Unit[1,2]				Site-Wide Water Risk[2,3]
		EU1	EU2	EU3	Site-Wide	
Trespasser Adult[4]	0	$2x10^{-7}$	$2x10^{-8}$	$2x10^{-8}$	$8x10^{-8}$	
Trespasser Adult[4]	600	$1x10^{-4}$	$9x10^{-6}$	$1x10^{-5}$	$6x10^{-5}$	
Trespasser Youth[4]	0	$4x10^{-7}$	$4x10^{-8}$	$4x10^{-8}$	$2x10^{-7}$	$4x10^{-7}$
Trespasser Youth[4]	600	**$4x10^{-4}$**	$2x10^{-5}$	$3x10^{-5}$	**$2x10^{-4}$**	
Trespasser Total[4]	0	$6x10^{-7}$	$5x10^{-8}$	$6x10^{-8}$	$3x10^{-7}$	
Trespasser Total[4]	600	**$5x10^{-4}$**	$3x10^{-5}$	$4x10^{-5}$	**$2x10^{-4}$**	
Total Trespasser with Water	0	$1x10^{-6}$	$5x10^{-7}$	$5x10^{-7}$	$7x10^{-7}$	

1. In this future scenario, the top 2 ft of surface soil is allowed to erode over 1,000 years. Time of peak risk within 1,000 years is presented.
2. Risks greater than $1x10^{-4}$ are indicated in bold
3. Combined ground and surface water exposure only evaluated for youth trespasser (non-RESRAD calculation)
4. Exposure to total soils (0 ft – depth to native bgs)

A summary of annual dose results for the future exposure scenario is presented in Table 5-4. For future baseline exposures, if the 61 cm (2 ft) of cleaner surface soil is allowed to erode, annual radiological doses may increase up to 38 mrem/yr for the future trespasser (recreational user). These doses could occur 600 years into the future, assuming that the RESRAD default erosion rate of 1 mm per year occurs at this site.

5.3. Non-Carcinogenic Hazard Characterization Results

The updated BRA evaluated the likelihood that an individual may experience non-carcinogenic toxic effects due to exposures to COPCs, specifically uranium, as well as the probability of developing cancer due to exposure to COPCs. The non-carcinogenic toxic effects are addressed in this section. The term "toxic effects" can describe a wide variety of systemic effects, but for exposure to uranium, it specifically refers to kidney disease or damage. The hazards associated with exposure to toxic constituents were evaluated by comparing an exposure level or intake calculated using RME intake assumptions to a RfD. The RfD is the threshold below which no toxic effects are expected to occur in a normal population, including sensitive subpopulations. The ratio of intake or single-constituent exposure level over a specified time period to the RfD for that constituent derived from a similar exposure period is termed the hazard quotient (HQ) (EPA 1989b). An HQ greater than 1 is defined as the level of concern for potential adverse non-carcinogenic health effects (EPA 1989b).

Tables 5-5 and 5-6 summarize the toxic effects from exposure to uranium for current and future baseline exposure scenarios, respectively. All of the HQs are much less than 1, indicating that exposure to uranium does not have the potential to cause kidney damage or disease for any of the receptors evaluated in this updated BRA.

Table 5-3
Summary of Radiological Doses for Current Conditions

Receptor	Year	Soils Dose by Exposure Unit[1,2]				Site-Wide Water Dose[2,3]
		EU1	EU2	EU3	Site-Wide	
Trespasser Adult[4]	0	0.28	0.12	0.20	0.21	
Trespasser Adult[4]	1,000	0.19	0.080	0.14	0.14	
Trespasser Youth[4]	0	1.8	0.80	1.3	1.3	0.098
Trespasser Youth[4]	1,000	1.2	0.52	0.88	0.89	
Total Trespasser Youth with Water	0	1.9	0.90	1.4	1.4	
Construction Worker[5]	0			4.8		0.095
Construction Worker[5]	1,000			3.5		
Total Construction Worker with Water	0			4.9		

1. Blank cells indicate that the receptor is assumed not to be exposed to this unit
2. Doses greater than 25 mrem/yr are indicated in bold
3. Combined ground and surface water exposure only evaluated for youth trespasser and construction worker (non-RESRAD calculation)
4. Exposure to surface soils only (0 ft – 2 ft bgs)
5. Exposure to total soils (0 ft – depth to native bgs)

Table 5-4
Summary of Radiological Doses for Future Baseline Conditions

Receptor	Year	Soils Dose by Exposure Unit[1,2]				Site-Wide Water Dose[2,3]
		EU1	EU2	EU3	Site-Wide	
Trespasser Adult[4]	0	0.0064	0.000094	0.00013	0.0026	
Trespasser Adult[4]	600	5.9	0.074	0.11	2.6	
Trespasser Youth[4]	0	0.041	0.00060	0.00086	0.017	0.15
Trespasser Youth[4]	600	**37.8**	0.48	0.74	16.4	
Total Trespasser Youth with Water	0	0.19	0.15	0.15	0.17	

1. In this future scenario, the top 2 ft of surface soil is allowed to erode over 1,000 years. Time of peak risk within 1,000 years is presented.
2. Doses greater than 25 mrem/yr are indicated in bold
3. Combined ground and surface water exposure only evaluated for youth trespasser (non-RESRAD calculation)
4. Exposure to total soils (0 ft – depth to native bgs)

Table 5-5
Summary of Uranium Chemical Hazards for Current Conditions

Receptor	Soils Hazard by Exposure Unit[1,2]				Site-Wide Water Hazard[2,3]
	EU1	EU2	EU3	Site-Wide	
Trespasser Adult[4]	0.00061	0.00029	0.00043	0.00047	
Trespasser Youth[4]	0.0010	0.00048	0.00072	0.00079	0.0053
Total Trespasser Youth with Water	0.0063	0.0058	0.0060	0.0061	
Construction Worker[5]			0.0055		0.0032
Total Construction Worker with Water			0.0087		

1. Blank cells indicate that the receptor is assumed not to be exposed to this unit
2. Hazards greater than 1 are indicated in bold
3. Combined ground and surface water exposure only evaluated for youth trespasser and construction worker
4. Exposure to surface soils only (0 ft – 2 ft bgs)
5. Exposure to total soils (0 ft – depth to native bgs)

Table 5-6
Summary of Uranium Chemical Hazards for Future Baseline Conditions

Receptor	Soils Hazard by Exposure Unit[1,2]				Site-Wide Water Hazard[2,3]
	EU1	EU2	EU3	Site-Wide	
Trespasser Adult[4]	0.0070	0.00027	0.00032	0.0042	
Trespasser Youth[4]	0.012	0.00045	0.00053	0.0070	0.0053
Total Trespasser Youth with Water	0.017	0.0057	0.0058	0.012	

1. In this future scenario, the top 2 ft of surface soil is allowed to erode over 1,000 years.
2. Hazards greater than 1 are indicated in bold
3. Combined ground and surface water exposure only evaluated for youth trespasser
4. Exposure to total soils (0 ft – depth to native bgs)

6. Human Health Uncertainty Analysis

The evaluation of radiological and chemical risks (uranium) to human health presented in this updated BRA is, by necessity, based on a number of assumptions. In addition, many uncertainties are inherent to the risk assessment process. This section provides additional discussion of the rationale for the major assumptions used in this assessment and associated site-specific uncertainties, in order to address their potential impact on these results.

6.1. Uncertainty Related to Environmental Data

Uncertainty is associated with the process of data collection, analysis, and evaluation. The characterization of data from a landfill presents considerable uncertainty due to variation in the waste profile and the drilling method used. Voids were encountered in the soil corings, and without performing further characterization of the subsurface, it remains unknown exactly what was causing these voids. Therefore, there is some uncertainty regarding the true depth bgs from which the soil samples were obtained. The risk assessment evaluated two depth intervals: 0 to 61 cm (2 ft) below ground surface, and all soil depths. One of the receptors (trespasser) was assumed to be exposed to surficial soil (defined as the top 61 cm [2 ft]), while the construction worker was assumed to be exposed to soils at deeper depths. Removing the top void in the soil core reduced some uncertainty in placement of soil samples into these two soil intervals, as the presence of a void at the top of the coring was likely a result of compaction, and all surface soil samples should start at the surface, rather than some distance below ground surface. For the purposes of EPC development in this risk assessment, beyond removing the top void and adjusting the depth of the surface sample to ensure that the depth interval began at “0” cm bgs, no other voids in the core were removed, i.e., depth intervals of soil samples were not further adjusted. This was a conservative measure, as it appeared that removing deeper voids did not result in placement of soil samples into the top 61 cm (2 ft) interval with higher concentrations, i.e., the maximum detected concentration did not move from one soil interval to another (above or below 61 cm [2 ft]) once further voids were removed (Appendix E).

6.2. Uncertainty in Exposure Assessment

The exposure assessment quantifies intake of toxic substances from contaminated media. There are two main factors to this: the use of medium-specific EPCs, and estimates of receptor-specific behaviors (such as time spent in the contaminated area, and ingestion and inhalation rates for contaminated media).

The use of the statistical software ProUCL version 4.2 decreases uncertainty involved in calculating the EPCs. It uses a suite of statistical tests which may work better than the use of a single statistical test when a myriad of different data sets are used to describe concentrations of radioactivity in a given medium and EU. Using a suite of tests allows for the use of the best statistical test to calculate the upper confidence limit on the mean, depending on the data set. Choice of statistical test can vary depending on the shape of the distribution of the data, number of results, occurrence of non-detected values, etc. For some constituents which are present only at very low activities, such as U-235, the presence of many results below detection limits may skew the UCL95 towards the maximum detected concentration, rather than the true mean. This tends to result in an overestimation of EPCs for these constituents.

This updated BRA was performed after many comments were received from project stakeholders regarding the frequency and duration of use of the Landfill OU by the neighboring community (USACE 2007b). This site-specific information, in conjunction with recently updated guidance for children's exposure factors (EPA 2008) was used in choosing input parameter values for the exposure assessment. The use of site-specific inputs and updated EPA guidance should reduce the uncertainty involved in developing the exposure assessment. However, there are still some uncertainties in some of the receptor-specific intakes, such as inhalation rates and soil ingestion rates. The use of EPA-recommended values, based on extensive population surveys, should reduce some uncertainty. Although some activities that may occur on the Landfill OU, such as riding ATVs or playing sports, may result in occasionally greater soil ingestion rates, the values chosen are consistent with overall averages which would be appropriate to use for long-term or chronic exposures.

One of the receptors, the trespasser, is not expected to perform any intrusive activities into the Landfill OU soil. The trespasser's exposure is assumed to be limited to just the surface of the Landfill OU, which realistically extends to only the top 15 cm (6 in) of soil. As a conservative measure, all samples within the top 61 cm (2 ft) were included in the surface soil data set for calculating EPCs. This tends to overestimate exposure, since the surface soils were generally cleaner, with greater contamination at depth. Appendix E summarizes results for the various soil intervals and compares results to background values. A comparison of the 0 to 15 cm (6 in) interval with the 0 to 30 cm (2 ft) interval (combined soil and sediment data, top voids removed) indicates that there is very little difference in the EPCs for these soil intervals.

Another uncertainty inherent in the exposure assessment is the projected future use of the site. Currently, the site is an uncapped (unclosed) landfill which abuts a residential neighborhood. The entire site is slated to be closed under NYSDEC regulations for municipal landfills; however, plans for closing the Landfill OU have not yet been finalized, and there is some uncertainty involved in exact closure plans for this portion of the Landfill OU. Therefore, this updated BRA attempted to evaluate the "baseline" conditions into the future by evaluating potential exposures to deeper, more highly radioactive waste. Although direct residential exposure to the deeper buried contamination was not assessed, this updated BRA concludes that even long-term transient (i.e., via trespassing) exposure to the deeper contamination could result in an unacceptable risk.

6.3. Uncertainties Related to Toxicity Information

Although there are always uncertainties involved in developing all toxicity criteria, for this updated BRA, uncertainties exist mainly in the choice of criteria for the chemical toxicity of uranium, as well as in the DCFs, as these values are re-evaluated by scientists as new data becomes available. Because FUSRAP operates using the guiding principles of CERCLA, the need for further action is determined from the resulting cancer risk characterization, because this endpoint is more sensitive than the non-carcinogenic health impacts from exposure to uranium. Although there is some uncertainty with the chemical toxicity criteria for uranium and the DCFs for determining effective radiological dose, these uncertainties should not affect the primary outcome and resulting decisions made from this updated BRA. The uncertainties associated with the chemical toxicity of uranium and the DCFs for all FUSRAP-related radionuclides are discussed below.

A hierarchy is used to select the toxicity criteria in the risk assessment (EPA 2003). If toxicity criteria exist in EPA's Integrated Risk Information System (IRIS), then those are the toxicity criteria used. In IRIS, an oral Rfd for uranium soluble salts is given as 0.003 milligrams per kilogram per day (mg/kg-d). In promulgating the MCL for community drinking water supplies, the EPA used a provisional oral Rfd for uranium of 0.0006 mg/kg-d (EPA 2000). The use of the provisional oral Rfd for uranium in this risk characterization would result in a greater hazard index from uranium exposure. However, it is not appropriate to use a provisional toxicity criterion when an established one has not yet been withdrawn from IRIS. Although the IRIS toxicity criteria for uranium are currently being re-assessed, the values that are presently posted to IRIS should be used in this evaluation. In addition, the lack of an inhalation Rfd for uranium could underestimate risk from exposure to uranium. However, a recent journal article on uranium toxicity did indicate that the target organ for uranium toxicity is the kidney, irrespective of the route of entry (Kathren and Burklin 2008). This article noted that, "there has never been a death attributable to uranium poisoning in humans, and humans seem be less sensitive to both acute and chronic toxic effects of uranium than other mammalian species studies" (Kathren and Burklin 2008). Furthermore, the radiological effects of uranium (rather than its chemical toxicity) typically create the need for remedial action objectives aimed at protection of human health at most FUSRAP sites.

Estimates of the radiation dose rate were made using standard DCFs given in Federal Guidance Report (FGR) 11 (EPA 1988) and FGR 12 (EPA 1993). These DCFs are based on the metabolic and anatomical model of an adult male, the International Commission on Radiation Protection (ICRP) reference man, weighing 70 kg (154 lb). The ICRP selected such a standardized individual for its dosimetry models because the main concern was worker protection, and the majority of radiation workers are adult males. Although children are more susceptible to radiation exposure (i.e., the radiation doses are larger for children than adults for the same intake of radioactivity), such effects are only significant for very young children. All of the receptors addressed in the radiation dose assessment were adults except for the youth trespasser. The uncertainty associated with using DCFs developed for an adult for the youth trespasser is low, and does not significantly impact the radiation dose rates presented in this updated BRA. These DCFs have been used in numerous assessments, and evaluations for exposures to radiation and the uncertainty associated with their use is considered to be low.

More recently, the ICRP has issued Publication 72, which presents age-dependent DCFs for five ages of children ranging from 3 months to 15 years old (ICRP 2002). A comparison of these age-dependent DCFs for the three of the five ages used in ICRP 72 (15 year old, 10 year old, and 5 year old) to the DCFs from FGR 11 developed for the reference man and used in the RESRAD calculations for the Landfill OU was performed for radium, thorium, and uranium, the FUSRAP-related constituents at the site. Although the uranium FGR 11 inhalation DCFs were slightly higher than the DCFs for the three ages of children in ICRP 72, the corresponding DCFs for Ra-226 and Th-230 are greater for the ICRP 72 age groups than they are for the FGR 11 DCFs. This is due to improvements in the respiratory tract model used in ICRP 72 from that used to develop the values in FGR 11, as discussed in FGR 13 (EPA 1999). The updated model provides for more realistic projections of the radiation dose from inhaled radionuclides. Use of the inhalation DCFs from FGR 11 is less conservative than using the inhalation DCFs from ICRP 72

for these age groups for Ra-226 and Th-230. In a similar manner, the ingestion DCFs for children 5, 10 and 15 years old are greater than those for the reference man in FGR 11 for Ra-226 and Th-230, due to improvements in the approach used to calculate doses from ingestion. Use of the ingestion ICRP 72 DCFs for these age groups (as well as for adults) for these two FUSRAP-related radionuclides would be more conservative and would provide higher estimates of the radiation dose than use of the ICRP 72 values. Therefore, using the ingestion and inhalation DCFs from FGR 11 for scenarios which involve children could underestimate the annual doses to them. This uncertainty should be considered when the site proceeds to a FS and potential applicable or relevant and appropriate requirements (ARARs) are identified which use dose limits to establish preliminary remediation goals for the site. However, as the decision regarding need for further action at the site will be based on cancer risk, rather than dose, the choice of DCFs in this updated BRA would not change the conclusions of the BRA.

6.4. Uncertainties in Risk Characterization

The largest uncertainty in risk characterization involves uncertainties in the exposure assessment (Section 6.2). The trespassers are assumed to only be exposed to the landfill surface. Therefore, their current exposure does not include exposure to the deeper and higher levels of contamination. The greatest detected concentration of FUSRAP material (Ra-226, Th-230, U-238) is just below 61 cm (2 ft) at the 61 to 91 cm (2 to 3 ft) interval (if the top void is ignored in determining depth of sample). Exposure to this level of contamination could occur if the surface of the Landfill OU were allowed to erode over 1,000 years. Exclusion of this area of elevated radioactivity from the EPC for surface soils (used to evaluate current risks) underestimates the potential for long-term risks for the baseline assessment, if the current landfill surface is allowed to erode. The presumptive remedy for this site is closure of the landfill, and the Town of Tonawanda is under a Consent Order with NYSDEC to close and cap the landfill (NYSDEC 2001). However, if the landfill cover is not maintained, future site trespassers (or recreational users) could incur risks above the NCP acceptable risk range within the 1,000 year evaluation period.

7. Screening Level Ecological Risk Assessment

USACE is evaluating the need for remedial action at the Tonawanda Landfill Vicinity Property under CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA). There are several sections of CERCLA and SARA that indicate a requirement to protect the environment, e.g., Sections 104, 105(a)(2), 121(b)(1), 121(c), and 121(d). An ecological risk assessment will support decisions concerning whether or not remedial actions at the site should occur in order to protect the environment and ecological receptors. The NCP indicates that an ecological risk assessment should be conducted along with a human health risk assessment in the RI stage of the CERCLA process. The NCP calls for the identification and mitigation of environmental impacts (such as toxicity, bioaccumulation, death, reproductive impairment, growth impairment, and loss of critical habitat) at hazardous waste sites and for the selection of remedial actions to protect the environment.

7.1. Scope and Objectives

An ecological risk assessment is a process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors. The process is used to systematically evaluate and organize data, information, assumptions, and uncertainties in order to help understand and predict the relationships between stressors and ecological effects in a way that is useful for environmental decision making (EPA 1998). The USEPA has developed an eight step process for conducting ecological risk assessments for Superfund (EPA 1997b). The first two steps are considered screening level steps, while the latter six steps are considered part of a baseline ecological risk assessment. A screening level ecological risk assessment (SLERA) relies on site data and conservative assumptions. If no potential for unacceptable ecological risks is identified at the end of the SLERA, then there is no need to conduct a complete baseline ecological risk assessment.

At the screening level, ecological risk estimation is limited to a simplified assessment by comparing maximum documented exposure concentrations for each media with the ecotoxicity screening values. The screening level assessment serves to identify exposure pathways and constituents of potential ecological concern (COPEC) which would require further evaluation in a baseline ecological risk assessment by eliminating constituents and exposure pathways that pose negligible risks (USEPA, 1997b).

A screening level ecological risk assessment was performed in order to determine the potential for adverse ecological effects to occur from exposure to radionuclides at the Tonawanda Landfill OU, in the absence of remedial action. The risks due to toxic chemical effects of uranium exposure were also considered.

7.2. Procedural Framework

This SLERA was performed for radionuclides using the DOE's *Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota,* as outlined in their technical standard (DOE 2002). The DOE graded approach includes screening methods, as well as methods for a more detailed analysis, akin to a baseline risk assessment, that may be used to evaluate whether or not dose limits appropriate for the protection of biota are exceeded at a radiologically contaminated site. These dose limits have been presented and discussed by the National Council on Radiation

Protection and Measurements (NCRP) (NCRP 1991) and the International Atomic Energy Association (IAEA) (IAEA 1992). The graded approach uses the biota dose limits given below to demonstrate that populations of plants and animals are adequately protected from the effects of ionizing radiation.

- Aquatic animals: Animals rest, forage and breed only within aquatic habitats. The absorbed dose to aquatic animals should not exceed 1 rad per day (rad/d) (10 milliGray per day [mGy/d]) from exposure to radiation or radioactive material releases into the aquatic environment.
- Terrestrial animals: Animals rest, forage and breed only within terrestrial habitats. The absorbed dose to terrestrial animals should not exceed 0.1 rad/d (1 mGy/d) from exposure to radiation or radioactive material releases into the terrestrial environment.
- Terrestrial (Riparian) animals: Animals rest, forage and breed within both defined terrestrial and aquatic habitats. The absorbed dose to terrestrial animals should not exceed 0.1 rad/d (1 mGy/d) from exposure to radiation or radioactive material releases into the terrestrial and/or aquatic environment.
- Terrestrial plants: The absorbed dose to terrestrial plants should not exceed 1 rad/d (10 mGy/d) from exposure to radiation or radioactive material releases into the terrestrial environment.

The graded approach consists of a three step process, which is designed to guide a user from an initial, conservative general screening to a more rigorous analysis using site-specific information (if needed). As such, the graded approach is akin to EPA's eight step process for ecological risk assessments. The general screening step of the DOE graded approach is comparable to initial steps of a SLERA. If the general screening step is passed, there is no need to apply further steps within the graded approach. Each phase within the SLERA will be discussed in terms of how the DOE graded approach is applied at that phase for ecological exposures to radionuclides. For evaluation of the toxic chemical effects of uranium, a standard SLERA was performed, through the refinement step 3A, according to EPA guidance (EPA 1997b).

A scientific management decision point (SMDP) is presented at the conclusion of this SLERA. This SMDP will help determine if a full baseline ecological risk assessment is required to evaluate potential risks to ecological receptors from exposure to radionuclides and uranium in the environmental media at the Landfill OU. There are three potential outcomes of the SMDP:

- Risks may be negligible and no further action is warranted for protection of ecological receptors.
- Further information and evaluation are needed to define the potential ecological risks at the Landfill OU (i.e., baseline ecological risk assessment may be warranted).
- There is a potential for ecological risk, and sufficient information exists to proceed with a remedial action.

7.3. Problem Formulation

Problem formulation involves a description of the environmental setting, an overview of the nature and extent of site contamination (in this case, limited to radioactive constituents and the chemical toxicity of uranium), and a presentation of the pathways linking contamination to

ecological receptors. The ecological values to be protected (or assessment endpoints) are defined, as are the measurement endpoints that will be used in this screening-level assessment.

A complete description of the Tonawanda Landfill habitat is found in Section 6.6.2 of the previous USACE report (USACE 2005). The Town of Tonawanda Landfill provides only minimal habitat for urban wildlife, supporting only generalist species of birds and small mammals. Habitat consists of highly disturbed areas that, over time, have become more stable. These areas consist of managed grasslands, upland woods, and emergent wetlands.

Dominant vegetation in the managed grassland includes species such as Kentucky bluegrass (*Poa pratensis*) and fescue grass (*Festuca* spp.). Dominant trees in the wooded areas consisted of willows (*Salix* spp.), maples (*Acer* spp.), and hawthorn (*Crataegus* spp.). These woods are more indicative of single scattered trees with herbaceous grass cover at the base rather than a more closed canopy of forest.

Emergent wetlands only occur within the wet areas along the drainage ditch that traverses the Landfill OU. This drainage ditch drains for 457 m (1500 ft) to the southwest, and the water eventually outflows offsite. Emergent wetland vegetation grows in the drainage ditch that traverses the main part of IAs 1 and 2 and in poorly drained depressions at the site. The drainage ditch runs parallel to the fence on the north boundary and cuts right through the middle of IAs 1 and 2. Dominant vegetation in the drainage ditch consists primarily of exotic, invasive plants that are typically found in highly disturbed conditions. The most common plants in the drainage ditch are broad-leaved cattail (*Typha latifolia)*, common reed (*Phragmites australis*), and purple loosestrife (*Lythrum salicaria*). The ditch on-site is not expected to remain once the landfill is closed, therefore any habitat it currently affords would likely be altered during landfill closure.

This ditch currently flows into Two Mile Creek, where there is a small riparian corridor. This ditch drains the FUSRAP area of the landfill, but before it reaches Two Mile Creek, it converges with a second ditch draining the National Grid property located to the south of the landfill (Figure 2-1). Two Mile Creek is considered a Class B stream by the NYSDEC and indicates its best usage is for swimming, other recreation, and fishing. Any site contamination discharging to Two Mile Creek from the landfill should be evaluated. Therefore, aquatic life in Two Mile Creek warrants protection.

Ecological exposures will be evaluated in two separate aquatic units; an exposure unit for the portion of the ditch which is within the Landfill OU (on-site exposures), and exposures in the ditch as it exits the landfill property and traverses National Grid property towards Two Mile Creek (off-site exposures).

Terrestrial ecological exposures will not be evaluated in this SLERA for several reasons; the FUSRAP contamination generally is found below 61 cm (2 ft) in depth and most ecological exposures occur only within the top 61 cm (2 ft) of soil (see further discussion in Section 7.3.1 below).

7.3.1. Conceptual Site Model

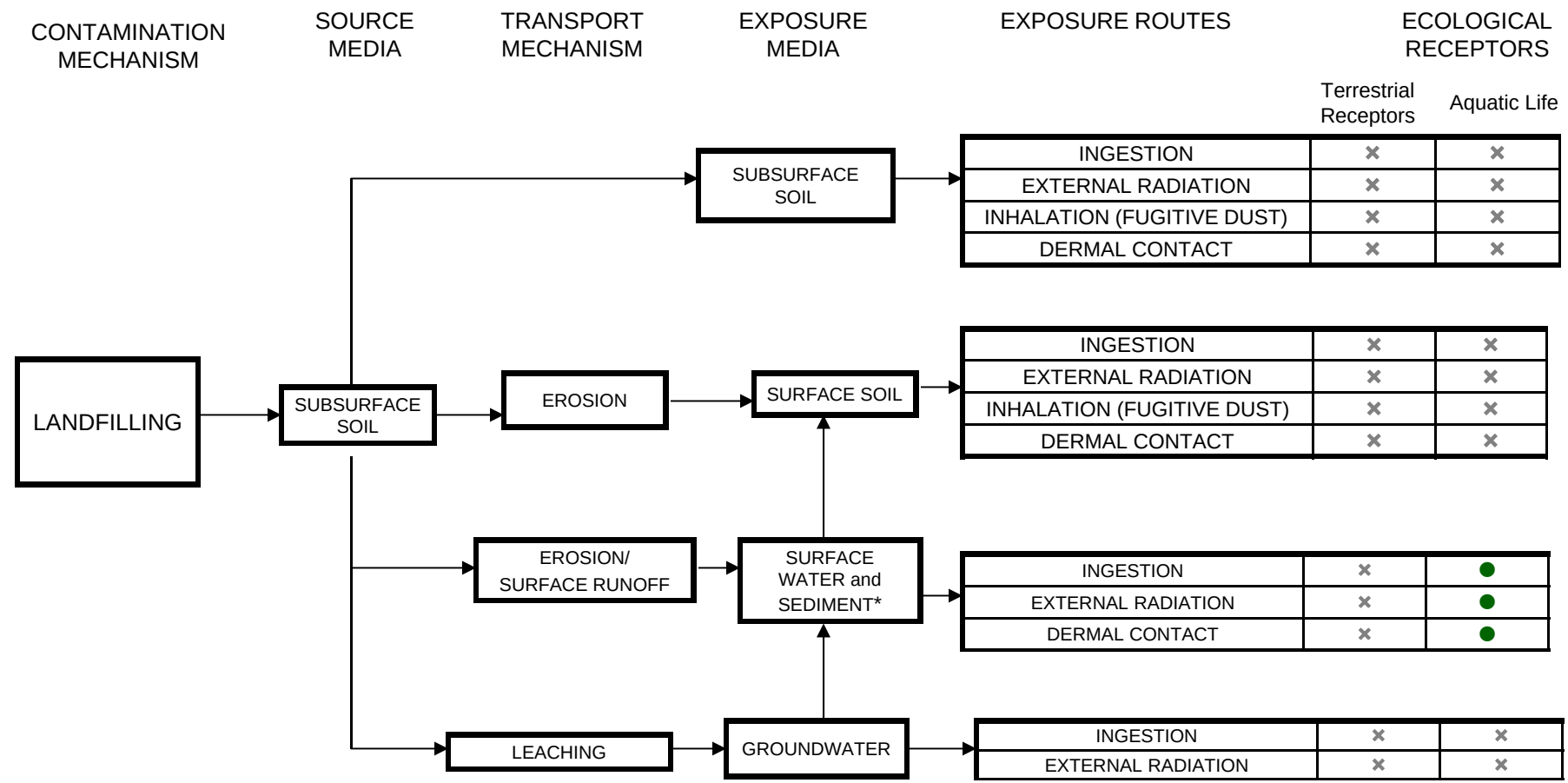
A screening level ecological CSM for the Tonawanda Landfill OU is presented in Figure 7-1. Sampling results indicate that the FUSRAP-related material is located in subsurface soils (i.e., buried) in the Landfill OU. Transport mechanisms are presented in Section 3.3.2. The main environmental medium for ecological exposures is contaminated surface water. A drainage ditch directly outflows through the Landfill OU and discharges into Two Mile Creek, where aquatic habitat is present (photographs of Two Mile Creek presented in Appendix D). Therefore, exposure to contaminated surface water is considered to be a complete pathway for ecological receptors. As uranium has been observed in surface water during the last rounds of sampling (USACE 2005 and Sections 2.1 and 2.2 of this report), there is potential exposure to aquatic life not only in the on-site ditch, but also off-site as well. The sediment samples obtained in the ditch have not had significant levels of contamination, indicating that the uranium observed in surface water is mainly dissolved in the water and has the potential to be carried off-site, but is not causing contamination to on-site sediments or surface soil via runoff (although, the banks of Two Mile Creek were sampled by DOE in 1991 and 1996 and low levels of isolated contamination were present in the creek banks at that time [ORNL 1997]).

The potential for off-site migration of uranium in surface water was evaluated in November 2011 by further sampling the ditch as it moves off-site onto National Grid property and converges with a second ditch which drains other areas of National Grid property to the south of the landfill.

A site visit to Two Mile Creek was conducted on May 9, 2011. Dumping and other physical disturbances to the habitat are still evident; however there is a biking and walking path on the banks of the creek, with a row of newly planted ornamental trees. The disturbed habitat appears to be recovering through the efforts being made to preserve green space along one side of the creek. The opposite side of the creek abuts a housing development which limits the restoration width of the riparian corridor. Invasive species such as Japanese knotweed are found in some areas of the riparian zone of the creek, however mature trees are also evident overhanging the creek that improve overall stream ecological health (Appendix D).

Terrestrial exposure to plant and animal contamination within the Landfill OU is assumed to be limited. Most ecological exposure, if it is available for uptake to the terrestrial plants and animals, will be found within the surface soil and soils found within the root zone. However, uranium usually does not bind as easily in soils as in water. Compacted soils also limit exposure by making it more difficult for contamination uptake for terrestrial animals. The surface soil layer is relatively unimpacted when compared to subsurface areas of the Landfill OU within EU1. The majority of herbaceous plant covers found in the Landfill OU are plants which tolerate heavy disturbance and compacted soils (e.g. Reed Canary grass *[Phalaris arundinacea]* and phragmites [*Phragmites australis*]). Both of these plant species are invasive in nature and are considered extremely poor habitat quality. As these habitats are poor in quality, most terrestrial mammals naturally avoid them. Although trees are currently evident in the Landfill OU, the predominant stand of trees (*Salex* spp.) and their roots and root balls are found at a depth between 25 and 73 cm (10 and 30 in) depending on species. The greatest detected concentration of FUSRAP-related material (Ra-226, Th-230, and U-238) is just below 61 cm (2 ft), at the 61 to 91 cm (2 to 3 ft) interval (if the top void is ignored in determining depth of sample). In October 2009 several trees were sampled and found not to be taking the FUSRAP radionuclides into

Figure 7-1
Conceptual Site Model - Pathways for Ecological Exposure in the Landfill OU



Major route

× Incomplete exposure pathway or lack of habitat

● Complete exposure pathway

Notes:

* Surface water and sediment discharge from on-site ditch to Two Mile Creek

vegetative tissue (Section 2.4). Therefore, terrestrial plants and terrestrial animal exposures are not considered in this SLERA. The site is not currently managed for ecological purposes and is not expected to be so managed in the future. However, if in the future the site is not maintained and the cleaner surface soil that currently exists in the Landfill OU erodes, then terrestrial ecological exposures may become complete. Actions that are being considered to protect human health in that case would also be protective of any potential terrestrial ecological exposures (ICRP 1977, 1992).

7.3.2. Identification of Constituents of Potential Ecological Concern

The COPECs are the same as the COPCs for human receptors (Section 2.7.1), i.e., Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, and U-238. Uranium will be considered for its chemical toxicological effects, as well as for its ionizing radiation properties.

7.3.3. Selection of Exposure Units and Receptor Species

For a screening-level assessment, the DOE's graded approach begins by modeling doses to hypothetical aquatic, terrestrial, and terrestrial riparian organisms. The dose limits were established to protect populations of biota within each type of ecological setting. The assumptions and parameters used in DOE's general screening phase of the graded approach are based on a maximally exposed individual within each type of EU, representing a conservative approach for screening purposes. The choice of this hypothetical maximally exposed individual would be protective of actual ecological receptors present at the site.

Radionuclide contamination in the ditch sediments and surface water will be evaluated as two aquatic EUs for assessing potential risks to aquatic receptors, one on-site, and another off-site. In both aquatic EUs, terrestrial (riparian) receptors (e.g., raccoons) are assumed to be present. For the off-site aquatic exposure, fish and crustaceans such as crayfish are likely receptors in Two Mile Creek. Small fish (minnow sized) were observed in Two Mile Creek just downstream from the junction of the Landfill OU ditch (Appendix D). Raccoons are terrestrial riparian animals that are found in the area. Tracks and scat were observed along both the on-site ditch, the connecting off-site ditch as well as in Two Mile Creek during a May 2011 and a November 2011site visit. Also observed during a May 2011 site visit to Two Mile Creek was a great blue heron (*Ardea herodias*) foraging in Two Mile Creek.

7.3.4. Ecological Assessment and Measurement Endpoints

The protection of ecological resources, such as habitats and species of plants and animals, is a principal motivation for conducting a SLERA. Key aspects of ecological protection are presented as management goals, which are general goals established by legislation or agency policy and based on societal concern for the protection of certain environmental resources. The ecological management goal for the Tonawanda Landfill is the protection of aquatic plant and animal populations from adverse effects due to the release or potential release of radionuclides associated with past site activities.

The measurement endpoint will be the comparison of radionuclide or uranium concentrations in each medium of potential ecological concern (surface water and sediment) with biota concentration guidelines (BCG) developed for the general screening phase of the DOE's graded

approach or with the ecological screening level for chemical uranium. A BCG is the limiting concentration of a radionuclide in soil, sediment, or water that would not cause dose limits for protection of populations of aquatic and terrestrial biota to be exceeded. Just as the sum of ratios (SOR) approach is used when multiple radionuclides are present to ensure that human dose limits are not exceeded, the SOR approach is also applied to BCGs when multiple radionuclides are present in the environment. The computer program RESRAD-Biota was used to compare site data with generic BCGs. Table 7-1 presents the radionuclide ecological screening levels.

For an evaluation of chemical toxicity of uranium (as a metal), the recently developed Canadian water quality guideline (CWQG) for uranium (long-term exposures) is used as a screening level (CCME 2011). Table 7-2 presents the uranium chemical toxicity ecological screening levels.

7.3.5. Summary of COPECs

In summary, concentrations of the COPECs, Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, and U-238 in ditch sediments and surface water will be compared to DOE's general screening BCGs in each media. The SOR will be used to ensure that dose limits protective of biota are not exceeded. If the concentrations of radionuclides are less than the generic BCGs, and the SOR of BCGs is less than 1, then it may be concluded that biota dose limits have not been exceeded at the Tonawanda Landfill OU, and the site has passed the SLERA.

Uranium will also be considered a COPEC for its chemical toxicity, and the total uranium (mass) concentrations will be compared to the long-term CWQG for uranium.

7.4. Exposure Assessment

In the exposure assessment portion of a SLERA, the sources of contamination, receptors, and pathways of exposure are quantified.

7.4.1. Ecological Receptors and Exposure

As stated in section 7.3.4, the DOE's generic BCGs were developed to protect a hypothetical maximally exposed individual (i.e., a representative aquatic or riparian receptor) within each type of EU. If these generic BCGs are not exceeded, then it is assumed that real ecological receptors would also be protected.

As explained in the DOE's technical standard (DOE 2002), for external sources of radiation exposure, it is assumed that all of the ionizing radiation was deposited in the organisms (i.e., no pass-through and no self-shielding). This is conservative, and is tantamount to assuming that the radiosensitive tissues of concern (the reproductive tissues) lie on the surface of a very small organism. For external exposure to contaminated soil, the source was presumed to be infinite in extent. In the case of external exposure to contaminated sediment and water, the source was presumed to be semi-infinite in extent. The source medium to which the organisms are continuously exposed is assumed to contain uniform concentrations of radionuclides. These assumptions provide for appropriately conservative estimates of energy deposition in the organism from external sources of radiation exposure.

Table 7-1
Radionuclide Ecological Screening Levels

Constituent	Aquatic Animal[1]		Riparian Animal[1]	
	Sediment (pCi/g)	Water (pCi/L)	Sediment (pCi/g)	Water (pCi/L)
Ra-226	14,500	10.2	101	4.08
Ra-228	29,000	8.49	87.8	3.4
Th-228	16,400	374	805	2,040
Th-230	2,740,000	2,570	10,400	13,900
Th-232	3,290,000	304	1,300	1,680
U-234	3,080,000	202	5,270	683
U-235	105,000	217	3,730	736
U-238	42,800	223	2,490	756

1. Source: DOE 2002

Table 7-2
Uranium Toxicity Ecological Screening Levels

Constituent	Aquatic Animal	
	Sediment[1] (mg/kg)	Water[2] (μg/L)
Total Uranium	100	15

1. Source: Sheppard et al 2005
2. Source: CCME 2011

For internal sources of radiation exposure, estimates of the contribution to dose from internal radioactive material were conservatively made assuming that all of the decay energy is retained in the tissue of the organism. Progeny of radionuclides and their decay chains are also included. This provides an over-estimate of internal exposure, as the lifetime of many of the biota of interest is generally short compared to the time for the build-up of progeny for certain radionuclides. The radionuclides are presumed to be homogeneously distributed in the tissues of the receptor organism. This is unlikely to under-estimate the actual dose to the tissues of concern (i.e., reproductive organs). A radiation weighing factor of 20 for alpha particles is used in calculating the BCGs for all organism types. This is conservative, especially if nonstochastic effects are most important in determining harm to biota. The true value may be a factor of 3 to 4 lower than the weighting factor of 20 currently in use (DOE 2002).

The CWQG was developed to be protective of all aquatic life, including fish, freshwater invertebrates, aquatic plants, and algae. The uranium CWQG was calculated using a cumulative distribution function or species sensitivity distribution, such that the water quality guideline represents the concentration in water that will be protective of at least 95% of aquatic biota (CCME 2011). Therefore, uranium surface water concentrations collected on-site will be compared to the CWQG for uranium.

7.4.2. Quantification of Exposure

For the general screening phase of the DOE's graded approach, maximum concentrations of radionuclides measured in the 2009-2010 field investigations will be compared to the generic BCGs. If the maximum detected concentrations of radionuclides or uranium chemical exceed their respective screening levels, then EPCs, as developed in Section 3.4.1, or average concentrations, will be compared to the screening level or BCGs.

7.4.3. Radionuclide Exposure Evaluation

Biota within each EU are likely to be exposed to a range of radionuclide concentrations, and continual exposure to the maximum detected concentration is an overestimation of the true exposure. If the maximum detected concentrations of radionuclides are less than the BCGs, and the SOR of BCGs is less than 1, then it may be concluded that biota dose limits have not been exceeded, and the site has passed the SLERA. For human health, concentrations of radionuclides detected in sediments were combined with soil radionuclide concentrations. In addition, surface water and groundwater concentrations were combined. A summary of the EPCs in these combined matrices is presented in Table 2.8. The ecologically-relevant evaluations of concentrations in single media (sediment, and surface water) are presented in Appendix E.

7.4.4. Chemical Exposure Evaluation

The concentrations of total uranium (in mass units) were determined by converting isotopic uranium radioactivity concentrations to milligrams per liter (mg/L) (Section 3.4.2.3).

7.4.5. Exposure Assessment Summary

The maximum detected concentrations of radionuclides within each EU measured in the recent characterization program are compared to the generic BCGs or chemical total uranium screening levels to perform the SLERA. If the maximum detected concentrations exceed the BCGs or the

uranium screening level, then a comparison of the BCG or screening level to the EPC or average concentration will be made.

7.5. Effects Evaluation

7.5.1. Effects Evaluation for Radionuclides

The DOE's *Graded Approach For Evaluating Radiation Doses To Aquatic And Terrestrial Biota* (DOE 2002) was developed to address the growing concern that dose limits and standards established to protect human health may not always adequately protect ecological receptors from the ionizing effects of radiation. This assumption that protecting human health also protects biota, is most appropriate in cases where humans and other biota inhabit the same environment and have common routes of exposure, and less appropriate in cases where human access is restricted or pathways exist that are much more important for biota than for humans.

At the request of DOE, the NCRP reviewed the literature on the effects of radiation on aquatic organisms and prepared a report on the then-current understanding of such effects (NCRP 1991). The report also provided guidance for protecting populations of aquatic organisms, concluding that a chronic dose of no greater than 1 rad/d (10 mGy/d) to the maximally exposed individual in a population of aquatic organisms would ensure protection of the population. The IAEA examined and summarized the conclusions regarding aquatic organisms of several previous reviews as follows (IAEA 1992):

- Aquatic organisms are no more sensitive than other organisms; however, because they are cold-blooded animals, temperature can control the time of expression of radiation effects.
- The radiosensitivity of aquatic organisms increases with increasing complexity, that is, as organisms occupy successively higher positions on the phylogenetic scale.
- The radiosensitivity of many aquatic organisms changes with age, or, in the case of unhatched eggs, with the stage of development.
- Embryo development in fish and the process of gametogenesis appear to be the most radiosensitive stages of all aquatic organisms tested.
- The radiation-induced mutation rate for aquatic organisms appears to be between that for Drosophila (fruit flies) and mice.

Furthermore, the 1992 review found that the conclusions of an earlier IAEA review (IAEA 1976) were still supported. Specifically, appreciable effects in aquatic populations would not be expected at doses lower than 1 rad/d (10 mGy/d), and limiting the dose to the maximally exposed individuals to less than 1 rad/d (10 mGy/d) would provide adequate protection of the population.

The NCRP and IAEA concluded for aquatic organisms, and the IAEA concluded for terrestrial organisms, that the statement by the ICRP (ICRP 1977, ICRP 1991), "...if man is adequately protected, then other living things are also likely to be sufficiently protected" was reasonable within the limitations of the generic exposure scenarios examined.

Later studies and reviews by other international and national radiation protection agencies also supported the conclusions that dose limits of 1 rad/d (10 mGy/d) is protective of populations of

aquatic animals and terrestrial plants, and 0.1 rad/d (1 mGy/d) is protective of populations of terrestrial animals (UNSCEAR 1996, Gentner 2002, Copplestone et al 2001, CNSC-ACRP 2002). It should be noted that exposure below the recommended dose limits would not cause adverse effects at the population level, even though some individuals within the population might be adversely affected.

7.5.2. Effects Evaluation for Total Uranium Chemical Toxicity

The uranium CWQG was developed by the Canadian Council of Ministers of the Environment (CCME) by examining the distribution of toxic effects concentrations for aquatic taxa. The cumulative distribution function or species sensitivity distribution was composed by plotting effect concentrations obtained during toxicity testing (e.g., concentrations killing 50% of a population, the lowest effective level, or the no-effect level) on the x-axis and cumulative probability on the y-axis (CCME 2011). The number of data points used to construct the curve depended on the number of species tested for the endpoint of interest. Emphasis was placed on organism-level effects (e.g., survival, growth, reproduction) that can be more confidently used to predict ecologically significant consequences at the population level. With this method, the concentration of uranium in water that will be protective of at least 95% of aquatic biota was estimated (CCME 2011).

The uranium CWQG is based on generic environmental fate and behavior and toxicity data. The guideline is a conservative value below which all forms of aquatic life, during all life stages and in all Canadian aquatic systems, should be protected. Because of the proximity to the Great Lakes and the Canadian border, the CWQG is an appropriate screening for use at the Tonawanda Landfill OU as well.

The uranium CWQG consists of guidance for both short- and long-term exposure (33 μg/L and 15 μg/L, respectively). The long-term exposure value of the CWQG (15 μg/L) is intended to protect against negative effects to aquatic organisms during indefinite exposures, and was selected as the screening value in this evaluation.

The derivation of the CWQG included a consideration of earlier predicted no-effects concentrations developed by Sheppard et al for different groups of aquatic life (fish, invertebrates, and aquatic plants) (Sheppard 2005). The lowest of these predicted no-effects concentrations (5 μg/L) was developed to protect freshwater plants and invertebrates. However, the development of that older screening level used some toxicity studies which did not meet study or data guidelines newly developed by the CCME (CCME 2011). In addition, the CWQG derivation used additional newer toxicity studies that were not available at the time of Sheppard’s work. As the CWQG screening values are meant to protect all aquatic life, where the value is determined using more tolerant species, such as fish species, as well as very sensitive species, such as algae and invertebrates. Therefore, for the CWQG, all values were taken into account to provide one value that is protective for all species. The CWGQ is a more recently and robustly-developed screening level, so these values were used in lieu of Sheppard’s predicted no-effects concentration.

7.6. Risk Characterization for Ecological Receptors

7.6.1. Risk Characterization for Radionuclides

7.6.1.1. On-site Exposures

The maximum detected concentrations of radionuclides from on-site ditch surface water and sediment samples were compared to the BCGs for aquatic systems. As seen in Table 7-3, the SOR for these concentrations is slightly greater than one, meaning biota dose limits may be exceeded for aquatic life. In Tables 7-4 and 7-5, the EPC (UCL95 of mean) and average concentrations, respectively, were subsequently compared to aquatic BCGs. The SOR was still slightly exceeded when surface water EPCs were used, but when average concentrations were compared to aquatic BCGs, the SOR was just below one.

Although the maximum concentrations of radionuclides in ditch water and sediments exceed generic BCGs, the average concentrations of radionuclides in surface water are below levels which would cause an exceedance of radiological dose limits. Therefore, no further evaluation of radionuclide concentrations in water or sediments is warranted.

7.6.1.2. Off-site Exposures

The maximum detected radionuclide concentrations measured in four off-site ditch sampling locations is presented in Table 7-6. The SOR for these concentrations is under one, indicating that biota dose limits are not exceeded as the ditch water travels off the landfill and flows into Two Mile Creek.

7.6.2. Preliminary Risk Characterization for Total Uranium

7.6.2.1. On-site Exposures

As presented in Table 7-7, the maximum, EPC, and average concentrations of total uranium in on-site surface water all greatly exceed the aquatic screening level. In contrast, as shown in the same table, the maximum detected sediment concentration of total uranium is below its screening level. This conservative, initial screen of total uranium (mass) concentrations measured in on-site ditch water indicates the potential for unacceptable risk to on-site aquatic receptors and possibly terrestrial riparian animals feeding on aquatic receptors due to the chemical toxic effects of uranium in surface water at the Tonawanda Landfill OU. This confirms an observation from the CCME that the risks from chemical toxicity of uranium in freshwater ecosystems are generally higher than the radiological toxicity risks (CCME 2011).

However, the Landfill OU is not currently managed for ecological purposes and is not expected to be in the future. As noted in Section 7.3, this on-site ditch is dominated by invasive species and currently does not afford a high quality habitat to aquatic receptors. Given the proximity of the site to Two Mile Creek, where better aquatic habitat is available for foraging, the actual use of this ditch by riparian and aquatic receptors is likely to be very limited to none. Finally, the current ditch habitat will probably be altered or could be eliminated (i.e. culvert or tiled) when the landfill is closed removing accessibility to riparian receptors.

Table 7-3
On-site Surface Water and Sediment Maximum Concentrations Versus Radionuclide Screening Levels

Nuclide	Water				Sediment			
	Aquatic Animal							
	Conc (pCi/L)	BCG (pCi/L)	Ratio	Limiting Organism	Conc (pCi/g)	BCG (pCi/g)	Ratio	Limiting Organism
Ra-226	2.45	10.2	0.24	No	1.16	14,500	0.000080	No
Ra-228	1.24	8.49	0.15	No	1.82	29,000	0.000063	No
Th-228	0	374	0	Yes	1.05	16,400	0.000064	No
Th-230	0.325	2,570	0.00013	Yes	2.24	2,740,000	0.00000082	No
Th-232	0	304	0	Yes	1.02	3,290,000	0.00000031	No
U-234	61.4	202	0.30	Yes	15.3	3,080,000	0.0000050	No
U-235	6.44	217	0.030	Yes	1.39	105,000	0.000013	No
U-238	61.9	223	0.28	Yes	14.1	42,800	0.00033	No
Sum Limiting Organisms:			**0.61**		**Sum Limiting Organisms:**		**0**	
Riparian Animal								
Ra-226	2.45	4.08	0.60	Yes	1.16	101	0.011	Yes
Ra-228	1.24	3.4	0.36	Yes	1.82	87.8	0.021	Yes
Th-228	0	2,040	0	No	1.05	805	0.0013	Yes
Th-230	0.325	13,900	0.000023	No	2.24	10,400	0.00022	Yes
Th-232	0	1,680	0	No	1.02	1,300	0.00078	Yes
U-234	61.4	683	0.090	No	15.3	5,270	0.0029	Yes
U-235	6.44	736	0.0088	No	1.39	3,730	0.00037	Yes
U-238	61.9	756	0.082	No	14.1	2,490	0.0057	Yes
Sum Limiting Organisms:			**0.97**		**Sum Limiting Organisms:**		**0.043**	
Sum of Ratios for Water:			**1.58**		**Sum of Ratios for Sediment:**		**0.043**	
TOTAL SUM OF RATIOS FOR WATER AND SEDIMENT:							**1.62**	

Table 7-4
On-site Surface Water and Sediment Exposure Point Concentrations Versus Radionuclide Screening Levels

Nuclide	Water				Sediment			
	Aquatic Animal							
	Conc (pCi/L)	BCG (pCi/L)	Ratio	Limiting Organism	Conc (pCi/g)	BCG (pCi/g)	Ratio	Limiting Organism
Ra-226	1.49	10.2	0.15	No	1.39	14,500	0.000096	No
Ra-228	1.11	8.49	0.13	No	1.45	29,000	0.000050	No
Th-228	0	374	0	Yes	0.912	16,400	0.000056	No
Th-230	0.243	2,570	0.00009	Yes	1.3	2,740,000	0.00000047	No
Th-232	0	304	0	Yes	0.805	3,290,000	0.00000024	No
U-234	38	202	0.19	Yes	9.26	3,080,000	0.0000030	No
U-235	2.83	217	0.013	Yes	0.7	105,000	0.000007	No
U-238	38.4	223	0.17	Yes	9.18	42,800	0.00021	No
Sum Limiting Organisms:			**0.37**		**Sum Limiting Organisms:**		**0**	
Riparian Animal								
Ra-226	1.49	4.08	0.37	Yes	1.39	101	0.014	Yes
Ra-228	1.11	3.4	0.33	Yes	1.45	87.8	0.017	Yes
Th-228	0	2,040	0	No	0.912	805	0.0011	Yes
Th-230	0.243	13,900	0.000017	No	1.3	10,400	0.00013	Yes
Th-232	0	1,680	0	No	0.805	1,300	0.00062	Yes
U-234	38	683	0.056	No	9.26	5,270	0.0018	Yes
U-235	2.83	736	0.0038	No	0.7	3,730	0.00019	Yes
U-238	38.4	756	0.051	No	9.18	2,490	0.0037	Yes
Sum Limiting Organisms:			**0.69**		**Sum Limiting Organisms:**		**0.038**	
Sum of Ratios for Water:			**1.07**		**Sum of Ratios for Sediment:**		**0.038**	
TOTAL SUM OF RATIOS FOR WATER AND SEDIMENT:							**1.10**	

Table 7-5
On-site Surface Water and Sediment Average Concentrations Versus Radionuclide Screening Levels

Nuclide	Water				Sediment			
	Aquatic Animal							
	Conc (pCi/L)	BCG (pCi/L)	Ratio	Limiting Organism	Conc (pCi/g)	BCG (pCi/g)	Ratio	Limiting Organism
Pa-231	2.37	2,600	0.00091	Yes	0.509	24,400	0.000021	No
Pb-210	1.19	601	0.0020	Yes	1.24	91,800	0.000014	No
Ra-226	1.19	10.2	0.12	No	1.24	14,500	0.000086	No
Ra-228	1.09	8.49	0.13	No	1.27	29,000	0.000044	No
Th-228	0	374	0	Yes	0.814	16,400	0.000050	No
Th-230	0.216	2,570	0.000084	Yes	0.982	2,740,000	0.00000036	No
Th-232	0	304	0	Yes	0.699	3,290,000	0.00000021	No
U-234	19.2	202	0.10	Yes	4.52	3,080,000	0.0000015	No
U-235	2.37	217	0.011	Yes	0.509	105,000	0.0000048	No
U-238	19.1	223	0.086	Yes	4.52	42,800	0.00011	No
Sum Limiting Organisms:			**0.19**	**Sum Limiting Organisms:**			**0**	
Riparian Animal								
Pa-231	2.37	367,000	0.0000065	No	0.509	2,290	0.00022	Yes
Pb-210	1.19	926	0.0013	No	1.24	1,730	0.00072	Yes
Ra-226	1.19	4.08	0.29	Yes	1.24	101	0.012	Yes
Ra-228	1.09	3.4	0.32	Yes	1.27	87.8	0.014	Yes
Th-228	0	2,040	0	No	0.814	805	0.0010	Yes
Th-230	0.216	13,900	0.000016	No	0.982	10,400	0.000094	Yes
Th-232	0	1,680	0	No	0.699	1,300	0.00054	Yes
U-234	19.2	683	0.028	No	4.52	5,270	0.00086	Yes
U-235	2.37	736	0.0032	No	0.509	3,730	0.00014	Yes
U-238	19.1	756	0.025	No	4.52	2,490	0.0018	Yes
Sum Limiting Organisms:			**0.61**	**Sum Limiting Organisms:**			**0.032**	
Sum of Ratios for Water:			**0.81**	**Sum of Ratios for Sediment:**			**0.032**	
TOTAL SUM OF RATIOS FOR WATER AND SEDIMENT:							**0.84**	

Table 7-6
Off-site Surface Water and Sediment Maximum Concentrations Versus Radionuclide Screening Levels

Nuclide	Water				Sediment			
	Aquatic Animal							
	Conc (pCi/L)	BCG (pCi/L)	Ratio	Limiting Organism	Conc (pCi/g)	BCG (pCi/g)	Ratio	Limiting Organism
Pa-231	0.112	2,600	0.000043	Yes	0.068	24,400	0.0000028	No
Pb-210	0.198	601	0.00033	Yes	1.32	91,800	0.000014	No
Ra-226	0.198	10.2	0.019	No	1.32	14,500	0.000091	No
Ra-228	0.89	8.49	0.10	No	1.5	29,000	0.000052	No
Th-228	0.359	374	0.0010	Yes	1.35	16,400	0.000082	No
Th-230	0.118	2,570	0.000046	Yes	1.28	2,740,000	0.00000047	No
Th-232	0.081	304	0.00027	Yes	0.98	3,290,000	0.00000030	No
U-234	6.29	202	0.031	Yes	0.974	3,080,000	0.00000032	No
U-235	0.112	217	0.00052	Yes	0.068	105,000	0.00000065	No
U-238	6.05	223	0.027	Yes	1.01	42,800	0.000024	No
Sum Limiting Organisms:			**0.060**	**Sum Limiting Organisms:**			**0**	
Riparian Animal								
Pa-231	0.112	367,000	0.0000003	No	0.068	2,290	0.000030	Yes
Pb-210	0.198	926	0.00021	No	1.32	1,730	0.00076	Yes
Ra-226	0.198	4.08	0.049	Yes	1.32	101	0.013	Yes
Ra-228	0.89	3.4	0.26	Yes	1.5	87.8	0.017	Yes
Th-228	0.359	2,040	0.00018	No	1.35	805	0.0017	Yes
Th-230	0.118	13,900	0.0000085	No	1.28	10,400	0.00012	Yes
Th-232	0.081	1,680	0.000048	No	0.98	1,300	0.00075	Yes
U-234	6.29	683	0.0092	No	0.974	5,270	0.00018	Yes
U-235	0.112	736	0.00015	No	0.068	3,730	0.000018	Yes
U-238	6.05	756	0.0080	No	1.01	2,490	0.00041	Yes
Sum Limiting Organisms:			**0.31**	**Sum Limiting Organisms:**			**0.034**	
Sum of Ratios for Water:			**0.37**	**Sum of Ratios for Sediment:**			**0.034**	
TOTAL SUM OF RATIOS FOR WATER AND SEDIMENT:							**0.40**	

Table 7-7
On-site Surface Water and Sediment Concentrations Versus Uranium Toxicity Screening Levels

Constituent	Surface Water			Sediment		
	Concentration (μg/L)	Screening Level (μg/L)	Ratio	Concentration (mg/kg)	Screening Level (mg/kg)	Ratio
Total Uranium (Maximum)	185.7	15	12	44	100	0.4
Total Uranium (EPC)[1]	115.2	15	8	-	-	-
Total Uranium (Average)	57.3	15	4	-	-	-

1. The Exposure Point Concentration (EPC) is the 95% upper confidence limit of the mean

If the site will not be managed as a landfill (as is the presumed remedy), then further action to protect on-site aquatic exposures from dissolved uranium may be appropriate.

7.6.2.2. Off-site Exposures

The potentially unacceptable on-site ecological aquatic exposure was further evaluated by sampling and analysis of the water and sediment in the ditch as it travels off-site and converges with a drainage ditch from the National Grid property (before discharging to Two Mile Creek). Off-site surface sediment concentrations were comparable to background (unimpacted) soil concentrations so were not evaluated. Off-site surface water concentrations of uranium were evaluated for ecological exposures as shown in Table 7-8. This most recent sampling indicated that uranium concentrations in surface water decrease to levels below the aquatic uranium screening level and comparable to unimpacted water once the ditch from the FUSRAP area of the Landfill converges with the drainage ditch from the National Grid property (Section 2.2.2). Therefore, aquatic life in surface water bodies downgradient of this ditch, such as Two Mile Creek, is not likely to be impacted by uranium.

7.7. Uncertainties

There are uncertainties associated with every risk assessment, as not all the parameter values that need to be included in risk characterization can be completely characterized. In a SLERA, the assumptions used to estimate these values are designed to be overly conservative, so the screening-level risk characterization overestimates the actual risk. Some of the assumptions and their impact on the uncertainty of the risk characterization are discussed below.

7.7.1. Problem Formulation

In problem formulation, the ecological receptors and the exposure routes linking sources of radiological contamination to receptors are identified. At the screening level, exposure routes and receptors are chosen to represent maximum potential exposure of maximally exposed hypothetical individuals. For example, there are no true aquatic habitats on site, so there is some uncertainty with choosing screening levels developed to protect aquatic receptors. However, the on-site ditch discharges to Two Mile Creek, which provides foraging and resting habitat for terrestrial riparian receptors. It was assumed that some aquatic and terrestrial riparian receptors could be exposed to uranium dissolved in the surface water. A walk-over site visit was conducted on May 9, 2011, and confirmed the presence of habitat in Two Mile Creek. This evaluation was limited to protection of aquatic resources. A screen for protection of terrestrial organisms was not performed for several reasons. The site use precludes management for protection of burrowing animals, current habitat is poor quality and naturally excludes many small mammals as their needs are not meet by adequate foraging, resting, and nesting/brooding for young. Therefore, most terrestrial animals are not exposed to the current configuration of the contamination. However, if the site will not be managed as a landfill (as is the presumed remedy), then further evaluation of terrestrial organism exposure may be appropriate.

Table 7-8
Off-site Surface Water Concentrations Versus Uranium Toxicity Screening Levels

Constituent	Surface Water		
	Concentration (μg/L)	Screening Level (μg/L)	Ratio
Total Uranium (Maximum)	18.7	15	1.2
Total Uranium (Average)	4.164	15	0.3

7.7.2. Exposure Assessment

The assumptions used to estimate both external and internal doses for the generic screening step of DOE's graded approach (DOE 2002) were presented in section 7.4.1. There are many uncertainties associated with these assumptions, but all of these assumptions are intended to protect a hypothetical maximally exposed plant or animal from radioactive contaminants. As such, the assumptions overestimate the doses to a real ecological receptor, and are overly protective, which is appropriate during the first step of a screening-level assessment.

7.7.3. Effects Assessment

Various national and international radiation protection agencies agree that the dose limits set by the DOE (DOE 2002) and used in this SLERA, are protective of populations of ecological receptors (see section 7.5). Although there may be some uncertainty as to whether or not these limits may be protective of individuals within the population, the goal of the SLERA is to protect entire ecological populations, not specific individual plants or animals. It is only appropriate to protect specific individual plants or animals when threatened and endangered species are present, and none have been identified on the Tonawanda Landfill.

The CWQG for uranium is set to provide protection for periods of short- and long-term exposure. It is based on a generic environmental fate and behavior and toxicity data. The guideline is a conservative value which all forms of aquatic life, during all the life stages and in all Canadian aquatic systems, should be protected. Although conservative, it is mostly based on toxicity tests using naïve (i.e., non-tolerant) laboratory organisms, the guideline may not be relevant for areas with naturally elevated concentration of uranium with an adapted ecological community. In addition, the guideline is generic and not corrected for any toxicity modifying factors or any site-specific factors giving it limitations to be considered on a case by case investigation. Thus, if an exceedence of the guideline is observed (due to anthropogenically enriched water or because of elevated natural background concentrations), it does not necessarily suggest that toxic effects will be observed, but rather indicates the need to determine whether or not there is a potential for adverse environmental effects. In some situations, such as where an exceedence is observed, it may be necessary or advantageous to derive a site-specific guideline that takes into account local conditions (water chemistry, natural background concentration, genetically adapted organisms, community structure). The guideline should be used as a screening and management tool to ensure that uranium does not lead to the degradation of the aquatic environment. The CWQG for uranium could, for example, be the basis for the derivation of site-specific guidelines and objectives (derived with site-specific data as well as consideration of technological, site-specific, socioeconomic or management factors) (CCME 2011).

7.8. Scientific Management Decision Point

The SLERA concludes with the SMDP that ecological risks are negligible and no further action is warranted for protection of ecological receptors. The Landfill OU is not currently managed for ecological purposes and is not expected to be so managed in the future. Current habitat at the site consists of disturbed low quality habitat areas and the on-site ditch is characterized by invasive species. A current terrestrial ecological exposure to deeper levels of soil radioactivity is likely not occurring. If the site will not be managed as a landfill (as is the presumed remedy), then

further evaluation of terrestrial organism exposure and action to protect on-site aquatic exposures from dissolved uranium may be appropriate.

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8. Summary and Conclusions

This updated BRA was performed using a more recent and more comprehensive data set obtained during a 2009 – 2011 USACE investigation of the Landfill OU environmental media (soil, sediment, surface water, groundwater, and vegetation). The investigation and subsequent risk assessment were performed in response to comments received on the 2007 Proposed Plan. In addition to reducing much of the uncertainty inherent in the earlier risk assessment regarding the nature and extent of FUSRAP-related material in the Landfill OU, this risk assessment also uses a more site-specific exposure assessment, which was developed in part from feedback from the community and stakeholders regarding the duration and frequency of their potential exposures to Landfill media.

The more recent and comprehensive characterization effort did indicate the presence of buried FUSRAP-related material at concentrations similar to what the DOE found in the early 1990s. USACE also confirmed that the uranium appears to be leaching into surface water and groundwater, and movement of the contaminated groundwater is apparently being influenced by the presence of willow trees which are located in the vicinity of the FUSRAP-related material buried in the Landfill OU. However, as this contamination is buried, and only intermittent or incidental exposure to Landfill water is assumed, the risk assessment concludes that for the current use of this site as it is currently configured, risks to human health from potential exposures to FUSRAP-related material are within acceptable limits established in the NCP.

If changes in the landfill closure plan or site use occur, including a lack of maintenance of the surface of the landfill, then risks to trespassers or other users of the site could increase above the NCP acceptable risk range within the 1,000-year evaluation period. This updated BRA concludes that even long-term transient (i.e., via trespassing) exposure to the deeper contamination could result in an unacceptable risk. Some potential exists for unacceptable aquatic exposures in the on-site ditch if it remains. However, this aquatic risk is not considered significant as the site is not currently managed for ecological purposes and is not expected to be so managed in the future.

For human health, Ra-226 and Th-230 are the most significant contributors to risk and dose (Appendix F, Table F-12).

A FS is warranted to evaluate remedial action objectives which would be appropriate to mitigate potential unacceptable risks from exposure to the deeper buried levels of contamination. If the site will not be managed as a landfill (as is the presumed remedy), then further action to protect on-site aquatic exposures from uranium leaching from the soil source term to ground and surface water may be appropriate. A range of remedial alternatives will be developed and evaluated in the next phase of the CERCLA process for this site.

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9. References

Argonne National Laboratory (ANL) 1993. C. Yu, C. Loureiro, J.-J. Cheng, L.G. Jones, Y.Y. Wang, Y.P. Chia, and E. Faillace, *Data Collection Handbook to Support Modeling Impacts of Radioactive Material in Soil*, ANL/EAIS-8. Environmental Assessment Division Argonne National Laboratory, April.

ANL 2001. C. Yu, A.J. Zielen, J.-J. Cheng, D.J. LePoire, E. Gnanapragasam, S. Kamboj, J. Arnish, A. Wallo III, W.A. Williams, and H. Peterson, *User's Manual for RESRAD Version 6*, Environmental Assessment Division, Argonne National Laboratory, ANL/EAD-4, July.

Bechtel National, Inc. (BNI) 1993. *Remedial Investigation Report for the Tonawanda Site, Tonawanda, New York*. Bechtel National, Inc. February.

BNI 1995. Technical memorandum from Joann Sims, BNI Oak Ridge, TN (Tonawanda Landfill Field Sampling Results) to Eric T. Newberry, BNI Oak Ridge, TN, October 9.

Canadian Council of Ministers of the Environment (CCME) 2011. *Uranium: Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life.* Canadian Council of Ministers of the Environment, Winnipeg. PN 1451

Canadian Nuclear Safety Commission, Advisory Committee on Radiological Protection (CNSC-ACRP). 2002. *Protection of Non-Human Biota from Ionizing Radiation*. Document No. INFO-0730. June 2002.

Copplestone, D., S. Bielby, S. Jones. D. Patton, P. Daniel, and I. Gize. 2001. *Impact Assessment of Ionizing Radiation on Wildlife*. Environment Agency, Rio House, Bristol (BS32 4UD), UK.

United States Department of Energy (DOE) 1992. Document No. 098386, *Memorandum – Designation of Tonawanda Vicinity Properties*. U.S. Department of Energy. December.

DOE 1993, *Remedial Investigation Report for the Tonawanda Site*, prepared for the U.S. DOE, Oak Ridge Operations Office by Bechtel National, Inc., DOE//OR/21494-300.

DOE 2002. DOE Technical Standard, *A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota*. (DOE-STD-1153-2002) U.S. Department of Energy, Washington, D.C. 20585

Ebbs, S., D. Brady, and L. Kochian. 1998. *Role of Uranium Speciation in the Uptake and Translocation of Uranium by Plants.* Journal of Experimental Botany, Vol 49 (324)1183-1190.

Ebbs, S., D. Brady, W. Norvell, and L. Kochian. 2001. *Uranium Speciation, Plant Uptake, and Phytoremediation.* Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management. July 2001, 130-135.

Edmands, J. D., D. J. Brabander, D. S. Coleman. 2001. *Uptake and Mobility of Uranium in Black Oaks; Implications for Biomonitoring Depleted Uranium-Contaminated Groundwater*. Chemosphere 44 (2001) 789-795.

United States Environmental Protection Agency (EPA) 1988. *Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion and Ingestion,* EPA-520/1-88-020, Federal Guidance Report No. 11, prepared by Oak Ridge National Laboratory, Oak Ridge, Tenn., for U.S. Environmental Protection Agency, Office of Radiation Programs, Washington, D.C.

EPA 1989a. *Integrated Risk Information System (IRIS) on Uranium, Soluble Salts.* File last updated October 1989. Accessed March 2010. http://www.epa.gov/iris/subst/0421.htm

EPA 1989b. *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A),* EPA 540/1-89/002. PB90-155581. December.

EPA 1990. *National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule, FR Vol. 55, No. 46, March 8, 1990,* available from U.S. Government Printing Office, Washington, D.C.

EPA 1993. *External Exposure to Radionuclides in Air, Water, and Soil: Exposure to Dose Coefficients for General Application, Based on the 1987 Federal Radiation Protection Guidance,* EPA 402-R-93-081, Federal Guidance Report No. 12, prepared by Oak Ridge National Laboratory, Oak Ridge, Tenn., for U.S. Environmental Protection Agency, Office of Radiation and Indoor Air, Washington, D.C.

EPA 1997a. *Exposure Factors Handbook, Volumes I, II, and III,* EPA/600/P-95/002Fa-c, EPA, Office of Research and Development, Washington, DC

EPA 1997b. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. Interim Final*. EPA 540-R-97-006. Solid Waste and Emergency Response. U.S. Environmental Protection Agency, Edison, NJ.

EPA 1998. *Guidelines for Ecological Risk Assessment*. EPA/630/R-95/002Fa). U.S. Environmental Protection Agency.

EPA 1999. *Cancer Risk Coefficients for Environmental Exposure to Radionuclides,* EPA 402-R-99-001, Federal Guidance Report No. 13, prepared by Oak Ridge National Laboratory, Oak Ridge, Tenn., for U.S. Environmental Protection Agency, Office of Radiation and Indoor Air, Washington, D.C., Sept.

EPA 2000. National *Primary Drinking Water Regulations; Final Rule*. 40 CFR Parts 9, 141, and 142. Federal Register: December 7, 2000 (Volume 65, Number 236, Pages 76707-76753)

EPA 2002a. *Child-Specific Exposure Factors Handbook, Interim Report.* National Center for Environmental Assessment, Washington, DC; EPA/600/P-00/002B. Available from: National Information Service, Springfield, VA; PB2003-101678 and <http://www.epa.gov/ncea>.

EPA 2002b. *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites.* OSWER 9285.6-10. December 2002.

EPA 2003. *Human Health Toxicity Values in Superfund Risk Assessments*. OSWER Directive 9285.7-53. December.

EPA 2008. *Child-Specific Exposure Factors Handbook*, EPA/600/R-06/096F, September 2008 www.epa.gov/ncea

EPA 2010. *ProUCL Version 4.1.00 Technical Guide (Draft) Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations,* EPA/600/R-07/041. May 2010. http://www.epa.gov/osp/hstl/tsc/software.htm

Gentner, N. 2002. *What Harm Do We Wish to Protect Against and How Should it be Assessed.* Nuclear Energy Agency, Radiological Protection of the Environment: *The Path Forward to a New Policy?* Taormina, Sicily, Italy, February 12-14, 2002.

Hinton, T. G., A. S. Knox, D. I. Kaplan, R. Sharitz. 2005. *Phytoextraction of Uranium and Thorium by Native Trees in a Contaminated Wetland*. Journal of Radioanalytical and Nuclear Chemistry, 264 no. 2 (2005) 417-422

International Atomic Energy Agency (IAEA). 1976. *Effects of Ionizing Radiation Aquatic Organisms and Ecosystems.* Technical Report No. 172, IAEA, Vienna, Austria.

IAEA 1992. *Effects of Ionizing Radiation on Plants and Animals at Levels Implied by Current Radiation Protection Standards*. IAEA Technical Report Series 332, Vienna, Austria.

International Commission on Radiological Protection (ICRP). 1977. *Recommendations of the International Commission on Radiological Protection*. ICRP Publication 26, Pergamon Press, New York.

ICRP 1991. *Recommendations of the International Commission on Radiological Protection*. ICRP Publication 60, Pergamon Press, New York.

ICRP 2002. *ICRP Publication 72: Age-Dependent Doses to the Members of the Public from Intake of Radionuclides Part 5, Compilation of Ingestion and Inhalation Coefficients*, 72.

Interstate Technology and Regulatory Council (ITRC) 2009. *Phytotechnology Technical and Regulatory Guidance and Decision Trees, Revised*. Phytotechnologies Team, February.

Kathren, R. L., and R. K. Burklin, 2008. *Acute chemical toxicity of uranium*, Health Phys. 94(2):170 –179.

Kennedy, V. H., A. L. Sancheza, D. H. Oughtonb and A. P. Rowlanda. 1997. *Critical Review: Use of Single and Sequential Chemical Extractants to Assess Radionuclide and Heavy Metal Availability From Soils for Root Uptake*. Analyst, (1997) 122:89R–100R.

Mihalik, J., P. Tlustos, and J. Szakova, 2010. *Comparison of Willow and Sunflower for Uranium Phytoextraction Induced by Citric Acid.* Journal of Radioanalytical and Nuclear Chemistry (2010) 285:279-285**.**

Miller, Neil 2011. *Implementing Field Portable X-Ray Fluorescence during Environmental Investigations for Radioactive Materials*. Thesis submitted in partial fulfillment of Masters of Science in Environmental Health and Safety Management, Rochester Institute of Technology, May

National Council on Radiation Protection (NCRP). 1991. *Effects of Ionizing Radiation on Aquatic Organisms*. NCRP Report No. 109. Natl. Council on Radiation Protection and Measurements, Bethesda, MD

National Research Council (NRC) 2006. *Health Risks from Exposure to Low Levels of Ionizing Radiation, BEIR VII Phase 2,* Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, Board on Radiation Effects Research, Division on Earth and Life Studies, National Academy of Sciences, Washington, DC.

New York State Department of Environmental Conservation (NYSDEC) 2001. *Order on Consent for the Town of Tonawanda Landfill, No. 90-38.* New York State Department of Environmental Conservation, December 2001.

NYSDEC 2005. *Americium-241 Contamination in the Town of Tonawanda Landfill: Review of 1989 State task Force Decision and Recommendations for Future Management*. Division of Solid and Hazardous Materials, Bureau of Hazardous Waste and Radiation Management, Radiation Section, July 2005.

NYSDEC 2007. *Site Visit Report, Town of Tonawanda Landfill Neighboring Properties*. Division of Solid and Hazardous Materials, Bureau of Hazardous Waste and Radiation Management, Radiation Section, May 15, 2007 – June 13, 2007.

NYSDEC 2008. *Town of Tonawanda Landfill Vicinity Residential Sump Water Testing Report*, Division of Solid and Hazardous Materials, Region 9, August 2008.

Oak Ridge National Laboratory (ORNL) 1990. *Results of Mobile Gamma Scanning Activities in Tonawanda, New York,* Oak Ridge National Laboratory, Oak Ridge, Tennessee, December 1990.

ORNL 1992. *Results of the Radiological Survey at the Town of Tonawanda Landfill, Tonawanda, New York* (TNY001), ORNL/RASA-92/12, Measurements Applications and Development Group, Oak Ridge, TN, October.

ORNL 1997. *Results of the Radiological Survey at Two Mile Creek, Tonawanda, NY* (TNY002), ORNL/RASA-96/9, Life Sciences Division, Environmental Restoration and Waste Management Non-Defense Programs, Oak Ridge, August.

Sheppard, S.C., and W. G. Evenden, 1988. *Critical Compilation and Review of Plant/Soil Concentration Ratios for Uranium, Thorium, and Lead.* Journal of Environmental Radioactivity 8 (1988) 255- 285.

Sheppard, S.C., M. I. Sheppard, M-O Gallerand, and B. Sanipelli, 2005. *Derivation of ecotoxicity thresholds for uranium.* J. Env. Rad. 79(1):55-83.

Town of Tonawanda 1990. *Code of the Town of Tonawanda.* Chapter 215.

United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). 1996. *Effects of Radiation on the Environment.* A/AC.82/R.549, United Nations, Vienna.

United States Army Corps of Engineers (USACE) 1999. *Technical Memorandum. Radiological Human Health Assessment for the Town of Tonawanda Landfill*, Tonawanda, New York. Science Applications International Corporation for the U.S. Army Corps of Engineers, Buffalo District Office. February.

USACE 2001. *Requirements for the Preparation of Sampling and Analysis Plans,* Engineering Manual 200-1-3, February.

USACE 2005. *Remedial Investigation Report Tonawanda Landfill Vicinity Property, Tonawanda, New York.* Prepared by SAIC for USACE Buffalo District, April.

USACE 2007a. *Proposed Plan for the Tonawanda Landfill Vicinity Property Site, Tonawanda, New York.* Authorized under the Formerly Utilized Sites Remedial Action Program. Prepared by the USACE Buffalo District, January.

USACE 2007b. *Transcript of Public Meeting for the Proposed Plan for the Tonawanda Landfill Vicinity Property,* Tonawanda High School, Tonawanda, NY April 25, 2007 http://www.lrb.usace.army.mil/fusrap/landfill/landfill-proposedplan-transcript-2007-04.pdf

USACE 2009. *Field Sampling Plan: Remedial Investigation Addendum, In-House Groundwater, Surface Water, and Sediment Sampling, Town of Tonawanda Landfill FUSRAP Site.* Prepared by USACE Buffalo District, June.

USACE 2010. *Sampling and Analysis Plan for the Phase 2 Remedial Investigation at the Tonawanda Landfill Operable Unit in the Town of Tonawanda, New York, Volume I: Field Sampling Plan, Volume II: Quality Assurance Plan*, Revision 1, February.

USACE 2011. *Final Report for the Phase 2 Remedial Investigation at the Tonawanda Landfill Operable Unit at the Tonawanda FUSRAP Site in Tonawanda, NY.* Prepared by American Remediation Services and Environmental Corporation (ARSEC) for USACE Buffalo District, February.

United States Army Geospatial Center (USAGC) 2009. *Tonawanda Landfill and Mudflats Area GIS-Based Historical Photographic Analysis.* Prepared by the US Army Geospatial Center (AGC), Operations Division, Hydrologic and Environmental Analysis Branch for the USACE Buffalo District, April 2009

APPENDICES

The appendices for the Updated Baseline Risk Assessment are included on the attached disc.

Appendix A
Data Qualification Reports

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Appendix A-1
Data Qualification Report for
2009 Vegetation and Root Zone Sampling

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Town of Tonawanda Landfill (FUSRAP)

Tree (Leaf, Trunk and Root), Groundwater and Surface Water Sampling - October 2009
Laboratory Radiological Data Qualification -July 2010
Data Reviewer: [redacted] – Chemist - (LRB-TD-EH)

Laboratory Radiological Data Qualification Summary

Four (4) separate trees (weeping willow) were sampled consisting of four (4) sample matrixes: leaf, trunk, root, soil (tree root zone), unfiltered groundwater from soil core and one (1) surface water sample. Samples were collected by USACE-Buffalo District personnel in support of US Army Corps of Engineer (USACE) remediation investigation addendum effort at the Town of Tonawanda Landfill FUSRAP Project. Samples were submitted to Eberline Analytical/Oakridge Laboratory (Oak Ridge, TN) analyzed for:

Isotopic Thorium -228, -230 and -232 - Alpha Spectroscopy – EML Th-01 Modified
Isotopic Uranium – 234, -235 and –238 - Alpha Spectroscopy – EML U-02 Modified
Radium -226 – Lucas Cell/Alpha Scintillation - EPA Method 903.1 Modified
Radium -228 – Gas Proportional Counting - EPA 904.0 Modified

A data qualification was performed to assess the quality of the soil and water sampling results. These assessments was to demonstrate whether environmental data generated are appropriate for their intended purpose, are technically defensible, and are of known and acceptable precision and accuracy.

Analytical data generated by the offsite lab has undergone a process of data verification and review. The analytical data was qualified by utilizing the guidance presented in MARLAP (NUREG-1576) guidance where practicable and in USACE Kansas City and St. Louis District Radionuclide Data Quality Evaluation Guidance for Alpha and Gamma Spectroscopy (USACE, 2002).

The overall quality of the sampling information meets or exceeds the established project objectives. Data as presented, has been qualified as usable (100%). .

Data produced for this project demonstrates that it can with stand scientific scrutiny, is appropriate for its intended purpose and is of known and acceptable precision, and accuracy. Data integrity has been documented through proper implementation of Quality Assurance and Quality Control measures.

Worksheets for the data qualification are provided.

Final qualifiers are as follows:

J -Estimated values are qualified.
R -Rejected values qualified.
U -Non-detect parameters are qualified.

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LSCPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01034-01	10-01034	RA-226	LCS	LCS	pCi/l	11.2870932	Y		0.2896328	1.265349824	0.571949	0.1	10.069	112.09	OK		OK		1/12/2010		EPA 903.1	0.46319	0.9		Y	n	112.1		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	RA-226	MBL	BLANK	pCi/l	0.05370675	N		0.2883458	0.164131907	0.164044	0.1					OK	INV	1/12/2010		EPA 903.1				n	Y				MBL	MB<MDA
10-01034-03	10-01034	RA-226	DUP	TTLF-TREE-4-SW	pCi/l	1.12326047	Y		0.2656	0.276965186	0.253165	0.1				OK	OK		10/15/2009	19.301	EPA 903.1		0.4		Y	n		19.3		DUP	Z-Score (normalized dif.) < 1.98
10-01034-04	10-01034	RA-226	DO	TTLF-TREE-4-SW	pCi/l	1.36321873	Y		0.6414824	0.506511132	0.487822	0.1					INV		10/15/2009		EPA 903.1				Y	n				DO	
10-01034-05	10-01034	RA-226	TRG	TTLF-TREE-4-GW	pCi/l	7.82463737	Y		0.5995615	1.130893972	0.8165	0.1					INV		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-06	10-01034	RA-226	TRG	TREE-1-GW	pCi/l	1.56010473	Y		0.4843339	0.413460979	0.382898	0.1					OK		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-07	10-01034	RA-226	TRG	TREE-3-GW	pCi/l	6.8611834	Y		1.1143923	1.257867504	1.054264	0.1					INV		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-08	10-01034	RA-226	TRG	TREE-2-GW	pCi/l	3.25527591	Y		0.6675917	0.662030608	0.576469	0.1					INV		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-01	10-01034	RA-228	LCS	LCS	pCi/l	17.1371458	Y		1.2558566	1.268836547	1.149933	0.03129	17.294	99.094	OK		OK		1/12/2010		EPA 904.0 Modified	0.88198	0.1		Y	n	99.1		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	RA-228	MBL	BLANK	pCi/l	0.43511838	N		1.2666529	0.615071755	0.614921	0.03129					OK	OK	1/12/2010		EPA 904.0 Modified				n	Y				MBL	MB<MDA
10-01034-03	10-01034	RA-228	DUP	TTLF-TREE-4-SW	pCi/l	0.62945167	N	U	1.1307249	0.562333707	0.561989	0.03129				INV	OK		10/15/2009		EPA 904.0 Modified		0.7		n	n		65.1		DUP	Z-Score (normalized dif.) < 1.98
10-01034-04	10-01034	RA-228	DO	TTLF-TREE-4-SW	pCi/l	1.23733076	Y		1.2064825	0.62874064	0.627547	0.03129					OK		10/15/2009		EPA 904.0 Modified				Y	n				DO	
10-01034-05	10-01034	RA-228	TRG	TTLF-TREE-4-GW	pCi/l	0.49892395	N	U	0.9803662	0.484283066	0.484031	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01034-06	10-01034	RA-228	TRG	TREE-1-GW	pCi/l	0.09840214	N	U	0.9235076	0.436634802	0.436624	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01034-07	10-01034	RA-228	TRG	TREE-3-GW	pCi/l	0.36755349	N	U	0.9166607	0.447985028	0.447837	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01034-08	10-01034	RA-228	TRG	TREE-2-GW	pCi/l	0.62143543	N	U	0.8002763	0.408862554	0.4084	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01034-01	10-01034	TH-228	LCS	LCS	pCi/l	4.901	Y		0.03958	0.959770389	0.9597	0.00237	4.6789	104.75	OK		OK		1/12/2010		EML Th-01 Modified	0.16844	0.2		Y	n	104.7		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	TH-230	LCS	LCS	pCi/l	4.526	Y		0.08017	0.89826414	0.8982	0.00237	5.2997	85.401	OK		OK		1/12/2010		EML Th-01 Modified	0.14309	0.9		Y	n	85.4		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	TH-232	LCS	LCS	pCi/l	4.742	Y		0.08003	0.93356774 5	0.9335	0.00237	4.6789	101.35	OK		OK		1/12/2010		EML Th-01 Modified	0.16844	0.1		Y	n	101.3		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	TH-228	MBL	BLANK	pCi/l	0.02745	N		0.1664	0.07135003	0.07135	0.00237					OK	INV	1/12/2010		EML Th-01 Modified				n	Y				MBL	MB<MDA
10-01034-02	10-01034	TH-230	MBL	BLANK	pCi/l	0.07902	N		0.09092	0.077980225	0.07798	0.00237					OK	INV	1/12/2010		EML Th-01 Modified				n	n				MBL	MB<MDA
10-01034-02	10-01034	TH-232	MBL	BLANK	pCi/l	0.02522	N		0.1011	0.049180036	0.04918	0.00237					OK	INV	1/12/2010		EML Th-01 Modified				n	Y				MBL	MB<MDA
10-01034-03	10-01034	TH-228	DUP	TREE-1-GW	pCi/l	5.845	Y		0.5323	2.239042914	2.239	0.00237				INV	OK		10/15/2009	55.659	EML Th-01 Modified		0.9		Y	n		55.7		DUP	Z-Score (normalized dif.) < 1.98
10-01034-03	10-01034	TH-230	DUP	TREE-1-GW	pCi/l	8.698	Y		0.3754	3.033070153	3.033	0.00237				INV	OK		10/15/2009	28.639	EML Th-01 Modified		0.5		Y	n		28.6		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-03	10-01034	TH-232	DUP	TREE-1-GW	pCi/l	4.088	Y		0.3747	1.657028365	1.657	0.00237				OK	OK		10/15/2009	9.7056	EML Th-01 Modified		0.2		Y	n		9.7		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-04	10-01034	TH-228	TRG	TTLF-TREE-4-SW	pCi/l	0.08661	N	U	0.2187	0.133000159	0.133	0.00237					OK		10/15/2009		EML Th-01 Modified				n	Y				TRG	
10-01034-04	10-01034	TH-230	TRG	TTLF-TREE-4-SW	pCi/l	0.2364	Y		0.08948	0.185100849	0.1851	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-04	10-01034	TH-232	TRG	TTLF-TREE-4-SW	pCi/l	0.08393	N	U	0.2013	0.119700166	0.1197	0.00237					OK		10/15/2009		EML Th-01 Modified				n	Y				TRG	
10-01034-05	10-01034	TH-228	TRG	TTLF-TREE-4-GW	pCi/l	3.351	Y		0.1458	0.962632808	0.9626	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-05	10-01034	TH-230	TRG	TTLF-TREE-4-GW	pCi/l	3.388	Y		0.08471	0.946134121	0.9461	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-05	10-01034	TH-232	TRG	TTLF-TREE-4-GW	pCi/l	2.776	Y		0.08456	0.815026593	0.815	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-06	10-01034	TH-228	DO	TREE-1-GW	pCi/l	3.3	Y		0.967	1.813016893	1.813	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				DO	
10-01034-06	10-01034	TH-230	DO	TREE-1-GW	pCi/l	6.519	Y		0.3322	2.921040918	2.921	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				DO	
10-01034-06	10-01034	TH-232	DO	TREE-1-GW	pCi/l	4.505	Y		0.3316	2.184026135	2.184	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				DO	
10-01034-07	10-01034	TH-228	TRG	TREE-3-GW	pCi/l	29.65	Y		0.4221	9.69125513	9.691	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-07	10-01034	TH-230	TRG	TREE-3-GW	pCi/l	44.95	Y		0.4226	14.30039738	14.3	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-07	10-01034	TH-232	TRG	TREE-3-GW	pCi/l	25.37	Y		0.4952	8.321217543	8.321	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-08	10-01034	TH-228	TRG	TREE-2-GW	pCi/l	10.07	Y		0.8356	4.104069492	4.104	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-08	10-01034	TH-230	TRG	TREE-2-GW	pCi/l	11.04	Y		0.8366	4.377078315	4.377	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-08	10-01034	TH-232	TRG	TREE-2-GW	pCi/l	10.25	Y		0.7886	4.101072051	4.101	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-01	10-01034	U-234	LCS	LCS	pCi/l	8.392	Y		0.03814	1.422439249	1.422	0.00421	8.1941	102.42	OK		OK		1/12/2010		EML U-02 Modified	0.29499	0.1		Y	n	102.4		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	U-235	LCS	LCS	pCi/l	0.6155	Y		0.09521	0.229114668	0.2291	0.00421					OK		1/12/2010		EML U-02 Modified				Y	n				LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	U-238	LCS	LCS	pCi/l	8.196	Y		0.06546	1.392428001	1.392	0.00421	7.9871	102.61	OK		OK		1/12/2010		EML U-02 Modified	0.28754	0.1		Y	n	102.6		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	U-234	MBL	BLANK	pCi/l	-0.004961	N		0.0782	0.007053031	0.007053	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01034-02	10-01034	U-235	MBL	BLANK	pCi/l	0.02986	N		0.09647	0.051800153	0.0518	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01034-02	10-01034	U-238	MBL	BLANK	pCi/l	0.02904	N		0.03848	0.041290181	0.04129	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01034-03	10-01034	U-234	DUP	TREE-3-GW	pCi/l	133.8	Y		0.704	29.8153267	29.81	0.00421				INV	OK		10/15/2009	26.109	EML U-02 Modified		0.8		Y	n		26.1		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-03	10-01034	U-235	DUP	TREE-3-GW	pCi/l	9.096	Y		0.6712	2.905252629	2.905	0.00421				OK	OK		10/15/2009	4.7381	EML U-02 Modified		0.1		Y	n		4.7		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-03	10-01034	U-238	DUP	TREE-3-GW	pCi/l	127.6	Y		0.5417	28.4750725	28.47	0.00421				OK	OK		10/15/2009	16.915	EML U-02 Modified		0.6		Y	n		16.9		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-04	10-01034	U-234	TRG	TTLF-TREE-4-SW	pCi/l	10.38	Y		0.3052	2.012474966	2.012	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-04	10-01034	U-235	TRG	TTLF-TREE-4-SW	pCi/l	0.5828	Y		0.258	0.336708948	0.3367	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-04	10-01034	U-238	TRG	TTLF-TREE-4-SW	pCi/l	12.21	Y		0.09242	2.298575405	2.298	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-05	10-01034	U-234	TRG	TTLF-TREE-4-GW	pCi/l	163.8	Y		0.7591	39.99595101	39.99	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-05	10-01034	U-235	TRG	TTLF-TREE-4-GW	pCi/l	13.49	Y		0.4156	4.329372876	4.329	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-05	10-01034	U-238	TRG	TTLF-TREE-4-GW	pCi/l	163.1	Y		1.022	39.83592396	39.83	0.00421					INV		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-06	10-01034	U-234	TRG	TREE-1-GW	pCi/l	20.09	Y		0.2952	3.846930775	3.846	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-06	10-01034	U-235	TRG	TREE-1-GW	pCi/l	2.171	Y		0.3011	0.789152981	0.7891	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-06	10-01034	U-238	TRG	TREE-1-GW	pCi/l	20.31	Y		0.1201	3.880942936	3.88	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LSCPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01034-07	10-01034	U-234	DO	TREE-3-GW	pCi/l	102.9	Y		0.2146	21.26441742	21.26	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01034-07	10-01034	U-235	DO	TREE-3-GW	pCi/l	8.675	Y		0.4563	2.540262803	2.54	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01034-07	10-01034	U-238	DO	TREE-3-GW	pCi/l	107.7	Y		0.2137	22.22463008	22.22	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01034-08	10-01034	U-234	TRG	TREE-2-GW	pCi/l	35.77	Y		0.1262	6.570727541	6.569	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-08	10-01034	U-235	TRG	TREE-2-GW	pCi/l	3.26	Y		0.3508	1.037090904	1.037	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-08	10-01034	U-238	TRG	TREE-2-GW	pCi/l	35.21	Y		0.2831	6.474698698	6.473	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-01	10-01035	RA-226	LCS	LCS	pCi/g	11.422941	Y		0.2831013	1.275756816	0.568084	0.1	10.014	114.07	OK		OK		1/12/2010		EPA Method 903.1 Modifi	0.46063	1.0		Y	n	114.1		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	RA-226	MBL	BLANK	pCi/g	0.16293348	N		0.1844963	0.117742787	0.11661	0.1					OK	INV	1/12/2010		EPA Method 903.1 Modified				n	n				MBL	MB<MDA
10-01035-03	10-01035	RA-226	DUP	TTLF-4-R	pCi/g	0.10672847	N		0.2209842	0.131915228	0.131483	0.1				OK	OK		10/15/2009	17.732	EPA Method 903.1 Modified		0.1		n	Y		17.7		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-04	10-01035	RA-226	DO	TTLF-4-R	pCi/g	0.12749529	N	U	0.1979043	0.121036702	0.120363	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	n				DO	
10-01035-05	10-01035	RA-226	TRG	TTLF-4-T	pCi/g	0.0745008	N	U	0.2825873	0.164101099	0.163932	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-06	10-01035	RA-226	TRG	TTLF-3-T	pCi/g	0.14979093	N	U	0.1691671	0.109301978	0.108271	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	n				TRG	
10-01035-07	10-01035	RA-226	TRG	TTLF-3-R	pCi/g	0.06038337	N	U	0.4102474	0.23078835	0.230709	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-08	10-01035	RA-226	TRG	TTLF-TREE-3-S	pCi/g	0.18247505	N	U	0.2348996	0.147724663	0.146593	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	n				TRG	
10-01035-09	10-01035	RA-226	TRG	TTLF-TREE-4-S	pCi/g	0.39156492	Y		0.2319453	0.16356805	0.158812	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-10	10-01035	RA-226	TRG	TTLF-TREE-4-L	pCi/g	0.00723669	N	U	0.0291118	0.01664784	0.016632	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-11	10-01035	RA-226	TRG	TTLF-TREE-3-L	pCi/g	0.14731058	Y	U	0.1115102	0.077125213	0.075705	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-12	10-01035	RA-226	TRG	TTLF-TREE-2-S	pCi/g	0.35827623	Y			0.148979204	0.144607	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-13	10-01035	RA-226	TRG	TTLF-TREE-1-S	pCi/g	0.15451498	Y			0.152977634	0.152195	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-14	10-01035	RA-226	TRG	TTLF-1-R	pCi/g	0.17060085	Y			0.084810381	0.083077	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-15	10-01035	RA-226	TRG	TTLF-TREE-1-T	pCi/g	0.06235953	Y			0.122383665	0.122225	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	Y				TRG	
10-01035-16	10-01035	RA-226	TRG	TTLF-2-T	pCi/g	0.02405575	Y			0.128282444	0.12826	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	Y				TRG	
10-01035-17	10-01035	RA-226	TRG	TTLF-2-R	pCi/g	0.13226867	N	U	0.2231672	0.135436046	0.134789	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-18	10-01035	RA-226	TRG	TTLF-TREE-2-L	pCi/g	0.00895022	N	U	0.1276702	0.071047095	0.071041	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-19	10-01035	RA-226	TRG	TTLF-TREE-1-L	pCi/g	0.3492314	Y		0.1526185	0.13157973	0.126861	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-01	10-01035	RA-228	LCS	LCS	pCi/g	14.6919806	Y		1.1977057	1.4591068	1.384778	0.03129	17.595	83.501	OK		OK		1/12/2010		EPA 904.0 Modified	0.89735	1.7		Y	n	83.5		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	RA-228	MBL	BLANK	pCi/g	0.09971951	N		0.9797248	0.46356145	0.463551	0.03129					OK	OK	1/12/2010		EPA 904.0 Modified				n	Y				MBL	MB<MDA
10-01035-03	10-01035	RA-228	DUP	TTLF-4-R	pCi/g	0.65108355	N		0.8677577	0.441738515	0.441268	0.03129				INV	OK		10/15/2009		EPA 904.0 Modified		0.9		n	n		154.4		DUP	Z-Score (normalized dif.) < 1.98
10-01035-04	10-01035	RA-228	DO	TTLF-4-R	pCi/g	0.08383346	N	U	1.04904	0.49446678	0.49446	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				DO	
10-01035-05	10-01035	RA-228	TRG	TTLF-4-T	pCi/g	0.36216052	N		0.6972081	0.345043771	0.344858	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-06	10-01035	RA-228	TRG	TTLF-3-T	pCi/g	0.30369798	N	U	0.6281629	0.309493504	0.309348	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-07	10-01035	RA-228	TRG	TTLF-3-R	pCi/g	0.61314031	N		0.8251293	0.420249112	0.419811	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-08	10-01035	RA-228	TRG	TTLF-TREE-3-S	pCi/g	0.5183776	N	U	1.3802021	0.672443134	0.672247	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-09	10-01035	RA-228	TRG	TTLF-TREE-4-S	pCi/g	0.50456832	N	U	1.4363437	0.698034259	0.697856	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-10	10-01035	RA-228	TRG	TTLF-TREE-4-L	pCi/g	0.39696094	N		0.7002449	0.348586752	0.348365	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-11	10-01035	RA-228	TRG	TTLF-TREE-3-L	pCi/g	0.21144702	N	U	0.5988558	0.291083651	0.291008	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-12	10-01035	RA-228	TRG	TTLF-TREE-2-S	pCi/g	1.69148771	Y		1.3854388	0.73679657	0.734893	0.03129					OK		10/15/2009		EPA 904.0 Modified				Y	n				TRG	
10-01035-13	10-01035	RA-228	TRG	TTLF-TREE-1-S	pCi/g	5.16425644	Y		1.0505003	0.732780177	0.714737	0.03129					OK		10/15/2009		EPA 904.0 Modified				Y	n				TRG	
10-01035-14	10-01035	RA-228	TRG	TTLF-1-R	pCi/g	0.72535566	N		0.9901802	0.501078872	0.500564	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-15	10-01035	RA-228	TRG	TTLF-TREE-1-T	pCi/g	-0.02868835	N	U	1.1024977	0.513813496	0.513813	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-16	10-01035	RA-228	TRG	TTLF-2-T	pCi/g	0.20818106	N	U	0.9827368	0.470282078	0.470237	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-17	10-01035	RA-228	TRG	TTLF-2-R	pCi/g	0.97445227	N		1.1631565	0.59105982	0.590273	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-18	10-01035	RA-228	TRG	TTLF-TREE-2-L	pCi/g	0.56392272	N		0.6994126	0.357892962	0.357458	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-19	10-01035	RA-228	TRG	TTLF-TREE-1-L	pCi/g	0.1545576	N	U	0.7184816	0.34418727	0.344153	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-01	10-01035	U-234	LCS	LCS	pCi/g	7.954	Y		0.09302	1.310428327	1.31	0.00421	8.2322	96.621	OK		OK		1/12/2010		EML U-02 Modified	0.29636	0.2		Y	n	96.6		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	U-235	LCS	LCS	pCi/g	0.4135	Y		0.04384	0.175608637	0.1756	0.00421					OK		1/12/2010		EML U-02 Modified				Y	n				LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	U-238	LCS	LCS	pCi/g	7.942	Y		0.06098	1.308427689	1.308	0.00421	8.0243	98.975	OK		OK		1/12/2010		EML U-02 Modified	0.28887	0.1		Y	n	99.0		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	U-234	MBL	BLANK	pCi/g	0.06734	N		0.07748	0.065730612	0.06573	0.00421					OK	INV	1/12/2010		EML U-02 Modified		1		n	n				MBL	MB<MDA
10-01035-02	10-01035	U-235	MBL	BLANK	pCi/g	0.03566	N		0.04724	0.050690223	0.05069	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01035-02	10-01035	U-238	MBL	BLANK	pCi/g	0.01439	N		0.03813	0.028850064	0.02885	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01035-03	10-01035	U-234	DUP	TTLF-4-R	pCi/g	0.07777	Y		0.05201	0.061370874	0.06137	0.00421				OK	OK		10/15/2009	16.494	EML U-02 Modified		0.1		Y	n		16.5		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-03	10-01035	U-235	DUP	TTLF-4-R	pCi/g	0.04214	Y		0.03722	0.049020321	0.04902	0.00421				OK	OK		10/15/2009	13.209	EML U-02 Modified		0.1		Y	Y		13.2		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-03	10-01035	U-238	DUP	TTLF-4-R	pCi/g	0.0661	Y		0.05178	0.056450687	0.05645	0.00421				OK	OK		10/15/2009	18.991	EML U-02 Modified		0.2		Y	n		19.0		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-04	10-01035	U-234	DO	TTLF-4-R	pCi/g	0.09175	Y		0.07386	0.074401004	0.0744	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-04	10-01035	U-235	DO	TTLF-4-R	pCi/g	0.0481	N	U	0.07762	0.059560345	0.05956	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				DO	
10-01035-04	10-01035	U-238	DO	TTLF-4-R	pCi/g	0.07997	Y		0.06265	0.06835083	0.06835	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01035-05	10-01035	U-234	TRG	TTLF-4-T	pCi/g	0.05739	Y		0.05427	0.053990541	0.05399	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-05	10-01035	U-235	TRG	TTLF-4-T	pCi/g	0.02682	N	U	0.06694	0.041950152	0.04195	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01035-05	10-01035	U-238	TRG	TTLF-4-T	pCi/g	0.009819	N	U	0.05403	0.024050036	0.02405	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-06	10-01035	U-234	TRG	TTLF-3-T	pCi/g	0	N	U	0.03211	0.003087214	0.003087	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-06	10-01035	U-235	TRG	TTLF-3-T	pCi/g	0.01495	N	U	0.03961	0.029980066	0.02998	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-06	10-01035	U-238	TRG	TTLF-3-T	pCi/g	0.01206	N	U	0.03197	0.024200053	0.0242	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-07	10-01035	U-234	TRG	TTLF-3-R	pCi/g	0.06266	N	U	0.06815	0.057040611	0.05704	0.00421					OK		10/15/2009		EML U-02 Modified				n	n				TRG	
10-01035-07	10-01035	U-235	TRG	TTLF-3-R	pCi/g	0.02577	N	U	0.06431	0.040290146	0.04029	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-07	10-01035	U-238	TRG	TTLF-3-R	pCi/g	0.01137	N	U	0.03012	0.02279005	0.02279	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-08	10-01035	U-234	TRG	TTLF-TREE-3-S	pCi/g	5.242	Y		0.0632	0.938759685	0.9385	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-08	10-01035	U-235	TRG	TTLF-TREE-3-S	pCi/g	0.4209	Y		0.09152	0.181708648	0.1817	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-08	10-01035	U-238	TRG	TTLF-TREE-3-S	pCi/g	4.916	Y		0.06293	0.88934108	0.8891	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-09	10-01035	U-234	TRG	TTLF-TREE-4-S	pCi/g	11.33	Y		0.0858	1.832621452	1.832	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-09	10-01035	U-235	TRG	TTLF-TREE-4-S	pCi/g	0.9128	Y		0.1058	0.288225644	0.2882	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-09	10-01035	U-238	TRG	TTLF-TREE-4-S	pCi/g	10.87	Y		0.07672	1.764594065	1.764	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-10	10-01035	U-234	TRG	TTLF-TREE-4-L	pCi/g	0.08861	Y		0.05486	0.062981106	0.06298	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-10	10-01035	U-235	TRG	TTLF-TREE-4-L	pCi/g	-0.002146	N	U	0.05765	0.004304009	0.004304	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-10	10-01035	U-238	TRG	TTLF-TREE-4-L	pCi/g	0.01691	N	U	0.05463	0.029340086	0.02934	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-11	10-01035	U-234	TRG	TTLF-TREE-3-L	pCi/g	0.04724	Y		0.02087	0.039160505	0.03916	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-11	10-01035	U-235	TRG	TTLF-TREE-3-L	pCi/g	0	N	U	0.02574	0.002012395	0.002012	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-11	10-01035	U-238	TRG	TTLF-TREE-3-L	pCi/g	0.0392	Y		0.02078	0.035510384	0.03551	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-12	10-01035	U-234	TRG	TTLF-TREE-2-S	pCi/g	1.741	Y		0.04709	0.441260937	0.4412	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-12	10-01035	U-235	TRG	TTLF-TREE-2-S	pCi/g	0.1315	Y		0.05809	0.109301403	0.1093	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-12	10-01035	U-238	TRG	TTLF-TREE-2-S	pCi/g	2.035	Y		0.04688	0.490774856	0.4907	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-13	10-01035	U-234	TRG	TTLF-TREE-1-S	pCi/g	1.183	Y		0.1367	0.343836107	0.3438	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-13	10-01035	U-235	TRG	TTLF-TREE-1-S	pCi/g	0.04324	N	U	0.1605	0.078090212	0.07809	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-13	10-01035	U-238	TRG	TTLF-TREE-1-S	pCi/g	1.119	Y		0.1053	0.330133646	0.3301	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-14	10-01035	U-234	TRG	TTLF-1-R	pCi/g	0.07645	N	U	0.1021	0.068030762	0.06803	0.00421					OK		10/15/2009		EML U-02 Modified				n	n				TRG	
10-01035-14	10-01035	U-235	TRG	TTLF-1-R	pCi/g	0.01789	N	U	0.08788	0.039500072	0.0395	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-14	10-01035	U-238	TRG	TTLF-1-R	pCi/g	0.04375	Y		0.02899	0.044190384	0.04419	0.00421					OK		10/15/2009		EML U-02 Modified				Y	Y				TRG	
10-01035-15	10-01035	U-234	TRG	TTLF-TREE-1-T	pCi/g	0.03297	N	U	0.05322	0.040830236	0.04083	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-15	10-01035	U-235	TRG	TTLF-TREE-1-T	pCi/g	0.02141	N	U	0.08582	0.041640098	0.04164	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-15	10-01035	U-238	TRG	TTLF-TREE-1-T	pCi/g	0.02888	N	U	0.06927	0.040980181	0.04098	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-16	10-01035	U-234	TRG	TTLF-2-T	pCi/g	0.06226	N	U	0.06773	0.056650607	0.05665	0.00421					OK		10/15/2009		EML U-02 Modified				n	n				TRG	
10-01035-16	10-01035	U-235	TRG	TTLF-2-T	pCi/g	0.06044	N	U	0.09074	0.063870507	0.06387	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-16	10-01035	U-238	TRG	TTLF-2-T	pCi/g	0.06392	Y		0.06055	0.056320644	0.05632	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-17	10-01035	U-234	TRG	TTLF-2-R	pCi/g	0.03995	N	U	0.06838	0.046620304	0.04662	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-17	10-01035	U-235	TRG	TTLF-2-R	pCi/g	0.05169	N	U	0.07574	0.057350413	0.05735	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-17	10-01035	U-238	TRG	TTLF-2-R	pCi/g	0.04172	N	U	0.06113	0.046290334	0.04629	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-18	10-01035	U-234	TRG	TTLF-TREE-2-L	pCi/g	0.04004	Y		0.03786	0.037600378	0.0376	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-18	10-01035	U-235	TRG	TTLF-TREE-2-L	pCi/g	0.02045	N	U	0.0271	0.029060128	0.02906	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-18	10-01035	U-238	TRG	TTLF-TREE-2-L	pCi/g	0.03161	N	U	0.0377	0.033430265	0.03343	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-19	10-01035	U-234	TRG	TTLF-TREE-1-L	pCi/g	0.01476	N	U	0.05914	0.028690067	0.02869	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-19	10-01035	U-235	TRG	TTLF-TREE-1-L	pCi/g	0.008065	N	U	0.06551	0.025160023	0.02516	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-19	10-01035	U-238	TRG	TTLF-TREE-1-L	pCi/g	0.00148	N	U	0.06842	0.021100001	0.0211	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-01	10-01035	TH-228	LCS	LCS	pCi/g	5.096	Y		0.09563	0.9822	0.982274	0.00237	4.6975	108.48	OK		OK		1/12/2010		EML Th-01 Modified	0.16911	**0.4**		Y	n	108.5		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	TH-230	LCS	LCS	pCi/g	4.552	Y		0.09575	0.8939	0.893965	0.00237	5.3198	85.566	OK		OK		1/12/2010		EML Th-01 Modified	0.14364	**0.8**		Y	n	85.6		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	TH-232	LCS	LCS	pCi/g	5.112	Y		0.06732	0.9844	0.984475	0.00237	4.6975	108.82	OK		OK		1/12/2010		EML Th-01 Modified	0.16911	**0.4**		Y	n	108.8		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	TH-228	MBL	BLANK	pCi/g	0.01684	N		0.1934	0.07639	0.07639	0.00237					OK	INV	1/12/2010		EML Th-01 Modified									**MBL**	MB<MDA
10-01035-02	10-01035	TH-230	MBL	BLANK	pCi/g	0.03212	N		0.1717	0.07542	0.07542	0.00237					OK	INV	1/12/2010		EML Th-01 Modified									**MBL**	MB<MDA
10-01035-02	10-01035	TH-232	MBL	BLANK	pCi/g	-0.009145	N		0.107	0.01073	0.01073	0.00237					OK	INV	1/12/2010		EML Th-01 Modified									**MBL**	MB<MDA
10-01035-03	10-01035	TH-228	DUP	TTLF-4-R	pCi/g	0.04048	N		0.08648	0.05769	0.05769	0.00237				INV	OK		10/15/2009	69.822	EML Th-01 Modified		**0.2**		n	Y		**69.8**		DUP	Z-Score (normalized dif.) < 1.98. Primary and Lab-Dup are non-dete
10-01035-03	10-01035	TH-230	DUP	TTLF-4-R	pCi/g	0.03857	N		0.07775	0.05128	0.05128	0.00237				OK	OK		10/15/2009	7.505	EML Th-01 Modified		**0.0**		n	Y		**7.5**		DUP	Z-Score (normalized dif.) < 1.98. Primary and Lab-Dup are non-dete
10-01035-03	10-01035	TH-232	DUP	TTLF-4-R	pCi/g	0	N		0.03835	0.003692008	0.003692	0.00237				OK	OK		10/15/2009	0	EML Th-01 Modified		**0.6**		n	Y		**200.0**		DUP	Z-Score (normalized dif.) < 1.98. Primary and Lab-Dup are non-dete
10-01035-04	10-01035	TH-228	DO	TTLF-4-R	pCi/g	0.01953	N	U	0.1388	0.06313	0.06313	0.00237					OK		10/15/2009		EML Th-01 Modified									DO	
10-01035-04	10-01035	TH-230	DO	TTLF-4-R	pCi/g	0.03578	N	U	0.1	0.05492	0.05492	0.00237					OK		10/15/2009		EML Th-01 Modified									DO	
10-01035-04	10-01035	TH-232	DO	TTLF-4-R	pCi/g	0.02556	N	U	0.08255	0.04447	0.04447	0.00237					OK		10/15/2009		EML Th-01 Modified									DO	
10-01035-05	10-01035	TH-228	TRG	TTLF-4-T	pCi/g	0.007462	N	U	0.1056	0.04457	0.04457	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-05	10-01035	TH-230	TRG	TTLF-4-T	pCi/g	0.041	N	U	0.08315	0.04977	0.04977	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-05	10-01035	TH-232	TRG	TTLF-4-T	pCi/g	0.008917	N	U	0.04908	0.02187	0.02187	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Cetainity > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01035-06	10-01035	TH-228	TRG	TTLF-3-T	pCi/g	0.02622	N	U	0.06421	0.03858	0.03858	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-06	10-01035	TH-230	TRG	TTLF-3-T	pCi/g	0.02072	N	U	0.0497	0.0295	0.0295	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-06	10-01035	TH-232	TRG	TTLF-3-T	pCi/g	0.01379	N	U	0.04455	0.02398	0.02398	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-07	10-01035	TH-228	TRG	TTLF-3-R	pCi/g	0.02113	N	U	0.1519	0.06995	0.06995	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-07	10-01035	TH-230	TRG	TTLF-3-R	pCi/g	0.1521	Y		0.09558	0.1031	0.103101	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-07	10-01035	TH-232	TRG	TTLF-3-R	pCi/g	-0.0003003	N	U	0.1081	0.03187	0.03187	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-08	10-01035	TH-228	TRG	TTLF-TREE-3-S	pCi/g	0.5746	Y		0.1262	0.2191	0.219104	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-08	10-01035	TH-230	TRG	TTLF-TREE-3-S	pCi/g	1.209	Y		0.07888	0.3406	0.340612	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-08	10-01035	TH-232	TRG	TTLF-TREE-3-S	pCi/g	0.7603	Y		0.0707	0.2467	0.246707	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-09	10-01035	TH-228	TRG	TTLF-TREE-4-S	pCi/g	0.6149	Y		0.1051	0.2405	0.240504	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-09	10-01035	TH-230	TRG	TTLF-TREE-4-S	pCi/g	0.6524	Y		0.0402	0.2372	0.237205	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-09	10-01035	TH-232	TRG	TTLF-TREE-4-S	pCi/g	0.482	Y		0.06917	0.1962	0.196203	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-10	10-01035	TH-228	TRG	TTLF-TREE-4-L	pCi/g	0.01077	N	U	0.07194	0.03248	0.03248	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-10	10-01035	TH-230	TRG	TTLF-TREE-4-L	pCi/g	0.01608	N	U	0.07915	0.03539	0.03539	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-10	10-01035	TH-232	TRG	TTLF-TREE-4-L	pCi/g	0.01458	N	U	0.05844	0.02842	0.02842	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-11	10-01035	TH-228	TRG	TTLF-TREE-3-L	pCi/g	-0.01748	N	U	0.123	0.03409	0.03409	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-11	10-01035	TH-230	TRG	TTLF-TREE-3-L	pCi/g	0.04057	N	U	0.08936	0.05319	0.05319	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-11	10-01035	TH-232	TRG	TTLF-TREE-3-L	pCi/g	0.0063	N	U	0.07677	0.02684	0.02684	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-12	10-01035	TH-228	TRG	TTLF-TREE-2-S	pCi/g	0.6246	Y		0.1282	0.2452	0.245204	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-12	10-01035	TH-230	TRG	TTLF-TREE-2-S	pCi/g	0.9773	Y		0.1122	0.3132	0.313209	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-12	10-01035	TH-232	TRG	TTLF-TREE-2-S	pCi/g	0.7925	Y		0.112	0.272	0.272006	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-13	10-01035	TH-228	TRG	TTLF-TREE-1-S	pCi/g	0.687	Y		0.182	0.3032	0.303204	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-13	10-01035	TH-230	TRG	TTLF-TREE-1-S	pCi/g	1.09	Y		0.1884	0.3915	0.391509	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-13	10-01035	TH-232	TRG	TTLF-TREE-1-S	pCi/g	0.7026	Y		0.1119	0.2891	0.289105	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-14	10-01035	TH-228	TRG	TTLF-1-R	pCi/g	0.03182	N	U	0.1418	0.07098	0.07098	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-14	10-01035	TH-230	TRG	TTLF-1-R	pCi/g	0.03094	N	U	0.1172	0.05606	0.05606	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-14	10-01035	TH-232	TRG	TTLF-1-R	pCi/g	-0.004567	N	U	0.072	0.006522	0.006522	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-15	10-01035	TH-228	TRG	TTLF-TREE-1-T	pCi/g	-0.009109	N	U	0.1287	0.03864	0.03864	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-15	10-01035	TH-230	TRG	TTLF-TREE-1-T	pCi/g	0.03557	N	U	0.09941	0.05462	0.05462	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-15	10-01035	TH-232	TRG	TTLF-TREE-1-T	pCi/g	-0.002601	N	U	0.06989	0.005231	0.005231	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-16	10-01035	TH-228	TRG	TTLF-2-T	pCi/g	0.006375	N	U	0.1151	0.04212	0.04212	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-16	10-01035	TH-230	TRG	TTLF-2-T	pCi/g	0.059	N	U	0.1153	0.07325	0.07325	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-16	10-01035	TH-232	TRG	TTLF-2-T	pCi/g	-0.003016	N	U	0.08103	0.006069	0.006069	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-17	10-01035	TH-228	TRG	TTLF-2-R	pCi/g	0.01247	N	U	0.1402	0.05831	0.05831	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-17	10-01035	TH-230	TRG	TTLF-2-R	pCi/g	0.04554	N	U	0.1709	0.08139	0.08139	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-17	10-01035	TH-232	TRG	TTLF-2-R	pCi/g	0.09529	N	U	0.1037	0.08782	0.08782	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-18	10-01035	TH-228	TRG	TTLF-TREE-2-L	pCi/g	-0.0026	N	U	0.09399	0.02997	0.02997	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-18	10-01035	TH-230	TRG	TTLF-TREE-2-L	pCi/g	0.08322	Y		0.05565	0.06691	0.06691	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-18	10-01035	TH-232	TRG	TTLF-TREE-2-L	pCi/g	0.008026	N	U	0.06521	0.02508	0.02508	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-19	10-01035	TH-228	TRG	TTLF-TREE-1-L	pCi/g	0.05427	N	U	0.06429	0.05552	0.05552	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-19	10-01035	TH-230	TRG	TTLF-TREE-1-L	pCi/g	0.03051	N	U	0.04924	0.03798	0.03798	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-19	10-01035	TH-232	TRG	TTLF-TREE-1-L	pCi/g	0	N	U	0.02852	0.002755113	0.002755	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	

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Appendix A-2
Data Qualification Report for
2009 Groundwater, Surface Water and Sediment Sampling

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Town of Tonawanda Landfill (FUSRAP)

Groundwater, Surface Water and Sediment Sampling - July 2009
Laboratory Radiological Data Qualification -June 2010
Data Reviewer: [redacted] – Chemist - (LRB-TD-EH)

Laboratory Radiological Data Qualification Summary

Twenty two (11-unfiltered and 11-field filtered) groundwater samples, ten (10) sediment samples and ten (10) surface water samples collected by USACE-Buffalo District personnel in support of US Army Corps of Engineer (USACE) remediation investigation addendum effort at the Town of Tonawanda Landfill FUSRAP Project. Samples were submitted to Eberline Analytical/Oakridge Laboratory (Oak Ridge, TN) analyzed for:

Sediment Sample Analysis:
Isotopic Thorium -228, -230 and -232 - Alpha Spectroscopy – EML Th-01 Modified
Isotopic Uranium – 234, -235 and –238 - Alpha Spectroscopy – EML U-02 Modified
Radium -226 – Gamma Spectroscopy - LANL ER-130 Modified
Radium -228 – Gamma Spectroscopy - LANL ER-130 Modified
Total Uranium -Kinetic Phosphorescence Analyzer - ASTM D5174 Modified

Water Sample Analysis:
Isotopic Thorium -228, -230 and -232 - Alpha Spectroscopy – EML Th-01 Modified
Isotopic Uranium – 234, -235 and –238 - Alpha Spectroscopy – EML U-02 Modified
Radium -226 – Lucas Cell/Alpha Scintillation - EPA 903.1
Radium -228 – Gas Proportional Counting - EPA 904.0 Modified
Total Uranium -Kinetic Phosphorescence Analyzer - ASTM D5174 Modified

A data qualification was performed to assess the quality of the soil and water sampling results. These assessments was to demonstrate whether environmental data generated are appropriate for their intended purpose, are technically defensible, and are of known and acceptable precision and accuracy.

Analytical data generated by the offsite lab has undergone a process of data verification and review. The analytical data was qualified by utilizing the guidance presented in MARLAP (NUREG-1576) guidance where practicable and in USACE Kansas City and St. Louis District Radionuclide Data Quality Evaluation Guidance for Alpha and Gamma Spectroscopy (USACE, 2002).

The overall quality of the sampling information meets or exceeds the established project objectives. Data as presented, has been qualified as usable (92.5%). One (1) water sample analyzed for Radium-226 was rejected "R" due to method blank contamination (batch method blank greater than primary finding). Six (6) surface water samples analyzed for Total-U (KPA) were rejected "R" due to a uncorrected dilution error.

Data produced for this project demonstrates that it can withstand scientific scrutiny, is appropriate for its intended purpose and is of known and acceptable precision, and accuracy. Data integrity has been documented through proper implementation of Quality Assurance and Quality Control measures.

Worksheets for the data qualification are provided.

Final qualifiers are as follows:

J -Estimated values are qualified.
R -Rejected values qualified.
U -Non-detect parameters are qualified.

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08007-02	09-08007	Gamma	RA-226	1	MBL	BLANK	pCi/g	0.05078	N		0.08577	0.0446	0.0446	0							LANL ER-130 Modified				n	n				MBL	MB<MDA
09-08007-02	09-08007	Gamma	RA-228	1	MBL	BLANK	pCi/g	-0.0194	N		0.1334	0.07579	0.07579	0							LANL ER-130 Modified				n	Y				MBL	MB<MDA
09-08007-01	09-08007	Gamma	CO-60	1	LCS	LCS	pCi/g	245.7	Y		1.79	13.020273	13.02	0	246.1	99.854	OK				LANL ER-130 Modified	6.77	0.0		Y	n	99.9		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	Gamma	CS-137	1	LCS	LCS	pCi/g	158.7	Y		1.5	13.860107	13.86	0	152.6	104.02	OK				LANL ER-130 Modified	4.42	0.4		Y	n	104.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	Gamma	RA-226	1	DUP	SW/SD-01	pCi/g	1.369	Y		0.1733	0.2353005	0.2353	0				OK			LANL ER-130 Modified		0.1		Y	n		2.7		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	Gamma	RA-228	1	DUP	SW/SD-01	pCi/g	1.019	Y		0.6179	0.3601002	0.3601	0				OK			LANL ER-130 Modified		0.3		Y	n		15.8		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	Gamma	RA-226	1	DO	SW/SD-01	pCi/g	1.332	Y		0.1786	0.2261005	0.2261	0							LANL ER-130 Modified				Y	n				DO	
09-08007-04	09-08007	Gamma	RA-228	1	DO	SW/SD-01	pCi/g	0.8698	Y		0.4139	0.3002001	0.3002	0							LANL ER-130 Modified				Y	n				DO	
09-08007-13	09-08007	Gamma	RA-226	1	TRG	SW/SD-02	pCi/g	1.491	Y		0.2262	0.2840005	0.284	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-13	09-08007	Gamma	RA-228	1	TRG	SW/SD-02	pCi/g	0.8895	Y		0.4436	0.3820001	0.382	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-14	09-08007	Gamma	RA-226	1	TRG	SW/SD-04	pCi/g	1.162	Y		0.1609	0.1689005	0.1689	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-14	09-08007	Gamma	RA-228	1	TRG	SW/SD-04	pCi/g	1.332	Y		0.3112	0.2405004	0.2405	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-12	09-08007	Gamma	RA-226	1	TRG	SW/SD-05	pCi/g	1.272	Y		0.51	0.4972002	0.4972	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-12	09-08007	Gamma	RA-228	1	TRG	SW/SD-05	pCi/g	1.59	Y		1.082	0.8442002	0.8442	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-10	09-08007	Gamma	RA-226	1	TRG	SW/SD-06	pCi/g	1.111	Y		0.1846	0.2011004	0.2011	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-10	09-08007	Gamma	RA-228	1	TRG	SW/SD-06	pCi/g	1.201	Y		0.3803	0.2599003	0.2599	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-11	09-08007	Gamma	RA-226	1	TRG	SW/SD-07	pCi/g	0.6703	Y		0.1404	0.1304002	0.1304	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-11	09-08007	Gamma	RA-228	1	TRG	SW/SD-07	pCi/g	0.9673	Y		0.2791	0.2381002	0.2381	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-06	09-08007	Gamma	RA-226	1	TRG	SW/SD-08	pCi/g	1.185	Y		0.2632	0.2757003	0.2757	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-06	09-08007	Gamma	RA-228	1	TRG	SW/SD-08	pCi/g	1.129	Y		0.8733	0.4908002	0.4908	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-08	09-08007	Gamma	RA-226	1	TRG	SW/SD-08-D	pCi/g	1.611	Y		0.7872	0.7312002	0.7312	0							LANL ER-130 Modified		0.5		Y	n		30.5		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	Gamma	RA-228	1	TRG	SW/SD-08-D	pCi/g	1.821	Y		1.566	0.9387002	0.9387	0							LANL ER-130 Modified		0.7		Y	n		46.9		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-09	09-08007	Gamma	RA-226	1	TRG	SW/SD-09	pCi/g	1.194	Y		0.1876	0.2255004	0.2255	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-09	09-08007	Gamma	RA-228	1	TRG	SW/SD-09	pCi/g	1.363	Y		0.3096	0.3451003	0.3451	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-05	09-08007	Gamma	RA-226	1	TRG	SW/SD-10	pCi/g	1.44	Y		0.418	0.4176003	0.4176	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-05	09-08007	Gamma	RA-228	1	TRG	SW/SD-10	pCi/g	1.44	Y		0.91	0.6711002	0.6711	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-07	09-08007	Gamma	RA-226	1	TRG	SW/SD-11	pCi/g	1.112	Y		0.2492	0.2768003	0.2768	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-07	09-08007	Gamma	RA-228	1	TRG	SW/SD-11	pCi/g	1.261	Y		0.5043	0.3430003	0.343	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-02	09-08007	KPA_SOL	TOTAL U	1	MBL	BLANK	ug/g	0	N		0.1	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08007-01	09-08007	KPA_SOL	TOTAL U	1	LCS	LCS	ug/g	111.324	Y		0.098232	7.9766387	3.58671	0.06	100	111.32	OK		OK		ASTM D5174 Modified	2	1.4		Y	n	111.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	KPA_SOL	TOTAL U	1	DUP	SW/SD-01	ug/g	14.9712	Y		0.048356	0.9747886	0.17931	0.06				OK	OK		ASTM D5174 Modified		0.4		Y	n		11.6		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	KPA_SOL	TOTAL U	1	DO	SW/SD-01	ug/g	15.5685	Y		0.049101	1.0136991	0.18656	0.06					OK		ASTM D5174 Modified				Y	n				DO	
09-08007-13	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-02	ug/g	13.3242	Y		0.049583	0.8669494	0.15628	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-14	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-04	ug/g	1.49126	Y		0.049823	0.0975156	0.02001	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-12	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-05	ug/g	44.4255	Y		0.048384	3.1954579	1.45842	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-10	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-06	ug/g	3.86798	Y		0.048119	0.2521899	0.04815	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-11	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-07	ug/g	4.18105	Y		0.048885	0.2725966	0.05202	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-06	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-08	ug/g	9.69623	Y		0.049628	0.6326581	0.12314	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-08	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-08-D	ug/g	9.60483	Y		0.049756	0.6254319	0.11532	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-09	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-09	ug/g	2.3139	Y		0.047605	0.1513961	0.03147	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-05	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-10	ug/g	2.06424	Y		0.04649	0.1351223	0.02837	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-07	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-11	ug/g	3.7813	Y		0.049746	0.2473607	0.0512	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-02	09-08007	ThISO	TH-228	1	MBL	BLANK	pCi/g	0.01023	N		0.1259	0.04358	0.04358	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08007-02	09-08007	ThISO	TH-230	1	MBL	BLANK	pCi/g	0.1805	Y		0.1699	0.1394007	0.1394	0					OK	INV	EML Th-01 Modified		1.29		Y	n				MBL	MB>MDA / Z-score(normalized diff) < 2
09-08007-02	09-08007	ThISO	TH-232	1	MBL	BLANK	pCi/g	-0.0142	N		0.1365	0.01452	0.01452	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08007-01	09-08007	ThISO	TH-228	1	LCS	LCS	pCi/g	4.75	Y		0.1346	0.9174692	0.9174	0	4.819	98.572	OK		OK		EML Th-01 Modified	0.173	0.1		Y	n	98.6		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	ThISO	TH-230	1	LCS	LCS	pCi/g	5.109	Y		0.07811	0.9746753	0.9746	0	5.365	95.221	OK		OK		EML Th-01 Modified	0.145	0.3		Y	n	95.2		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	ThISO	TH-232	1	LCS	LCS	pCi/g	4.465	Y		0.08673	0.8704644	0.8704	0	4.819	92.658	OK		OK		EML Th-01 Modified	0.173	0.4		Y	n	92.7		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	ThISO	TH-228	1	DUP	SW/SD-01	pCi/g	1.116	Y		0.1444	0.3975088	0.3975	0				OK	OK		EML Th-01 Modified		0.1		Y	n		6.0		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	ThISO	TH-230	1	DUP	SW/SD-01	pCi/g	2.238	Y		0.1353	0.6616213	0.6616	0				OK	OK		EML Th-01 Modified		0.0		Y	n		0.2		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	ThISO	TH-232	1	DUP	SW/SD-01	pCi/g	0.7185	Y		0.09546	0.292405	0.2924	0				INV	OK		EML Th-01 Modified		0.6		Y	n		34.6		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	ThISO	TH-228	1	DO	SW/SD-01	pCi/g	1.051	Y		0.1801	0.3801082	0.3801	0					OK		EML Th-01 Modified				Y	n				DO	
09-08007-04	09-08007	ThISO	TH-230	1	DO	SW/SD-01	pCi/g	2.243	Y		0.1438	0.6547216	0.6547	0					OK		EML Th-01 Modified		3.1	n	Y	n				DO	MB x5 < Sample finding, Z-Score (normalized Diff) > 1.98
09-08007-04	09-08007	ThISO	TH-232	1	DO	SW/SD-01	pCi/g	1.019	Y		0.1112	0.366508	0.3665	0					OK		EML Th-01 Modified				Y	n				DO	
09-08007-13	09-08007	ThISO	TH-228	1	TRG	SW/SD-02	pCi/g	0.6427	Y		0.1262	0.2387049	0.2387	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-13	09-08007	ThISO	TH-230	1	TRG	SW/SD-02	pCi/g	0.4853	Y	J	0.09008	0.1972034	0.1972	0					OK		EML Th-01 Modified		1.3	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-13	09-08007	ThISO	TH-232	1	TRG	SW/SD-02	pCi/g	0.4746	Y		0.06899	0.1935033	0.1935	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-14	09-08007	ThISO	TH-228	1	TRG	SW/SD-04	pCi/g	0.8225	Y		0.08251	0.2645072	0.2645	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-14	09-08007	ThISO	TH-230	1	TRG	SW/SD-04	pCi/g	0.7844	Y	J	0.08832	0.2552068	0.2552	0					OK		EML Th-01 Modified		2.1	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-14	09-08007	ThISO	TH-232	1	TRG	SW/SD-04	pCi/g	0.8396	Y		0.1025	0.2680074	0.268	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-12	09-08007	ThISO	TH-228	1	TRG	SW/SD-05	pCi/g	0.7099	Y		0.1746	0.2757051	0.2757	0					OK		EML Th-01 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08007-12	09-08007	ThISO	TH-230	1	TRG	SW/SD-05	pCi/g	1.081	Y	J	0.1604	0.3595091	0.3595	0					OK		EML Th-01 Modified		2.3	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-12	09-08007	ThISO	TH-232	1	TRG	SW/SD-05	pCi/g	0.5145	Y		0.1235	0.2212034	0.2212	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-10	09-08007	ThISO	TH-228	1	TRG	SW/SD-06	pCi/g	0.5884	Y		0.09542	0.2099046	0.2099	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-10	09-08007	ThISO	TH-230	1	TRG	SW/SD-06	pCi/g	0.5137	Y	J	0.05969	0.1901039	0.1901	0					OK		EML Th-01 Modified		1.4	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-10	09-08007	ThISO	TH-232	1	TRG	SW/SD-06	pCi/g	0.4849	Y		0.0698	0.1836036	0.1836	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-11	09-08007	ThISO	TH-228	1	TRG	SW/SD-07	pCi/g	0.8231	Y		0.09927	0.270907	0.2709	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-11	09-08007	ThISO	TH-230	1	TRG	SW/SD-07	pCi/g	1.143	Y		0.08566	0.3375109	0.3375	0					OK		EML Th-01 Modified		2.6	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 1.98
09-08007-11	09-08007	ThISO	TH-232	1	TRG	SW/SD-07	pCi/g	0.7866	Y		0.0855	0.2609067	0.2609	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-06	09-08007	ThISO	TH-228	1	TRG	SW/SD-08	pCi/g	0.981	Y		0.09752	0.340008	0.34	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-06	09-08007	ThISO	TH-230	1	TRG	SW/SD-08	pCi/g	1.02	Y	J	0.09764	0.3477084	0.3477	0					OK		EML Th-01 Modified		2.2	n	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-06	09-08007	ThISO	TH-232	1	TRG	SW/SD-08	pCi/g	0.8628	Y		0.04872	0.3092068	0.3092	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-08	09-08007	ThISO	TH-228	1	TRG	SW/SD-08-D	pCi/g	0.9181	Y		0.09643	0.3096077	0.3096	0					OK		EML Th-01 Modified		0.1		Y	n		6.6		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	ThISO	TH-230	1	TRG	SW/SD-08-D	pCi/g	0.8376	Y	J	0.1048	0.2898068	0.2898	0					OK		EML Th-01 Modified	2.0	0.4	Y	Y	n		19.6		TRG	MB x5 < Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-08	09-08007	ThISO	TH-232	1	TRG	SW/SD-08-D	pCi/g	0.695	Y		0.09637	0.2557053	0.2557	0					OK		EML Th-01 Modified		0.4		Y	n		21.5		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-09	09-08007	ThISO	TH-228	1	TRG	SW/SD-09	pCi/g	0.6252	Y		0.1073	0.2176051	0.2176	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-09	09-08007	ThISO	TH-230	1	TRG	SW/SD-09	pCi/g	0.9406	Y	J	0.05665	0.2832088	0.2832	0					OK		EML Th-01 Modified		2.4	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-09	09-08007	ThISO	TH-232	1	TRG	SW/SD-09	pCi/g	0.5926	Y		0.07371	0.2070048	0.207	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-05	09-08007	ThISO	TH-228	1	TRG	SW/SD-10	pCi/g	1.018	Y		0.124	0.3304088	0.3304	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-05	09-08007	ThISO	TH-230	1	TRG	SW/SD-10	pCi/g	0.7122	Y	J	0.1298	0.2597055	0.2597	0					OK		EML Th-01 Modified		1.8	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-05	09-08007	ThISO	TH-232	1	TRG	SW/SD-10	pCi/g	0.7485	Y		0.04316	0.2649059	0.2649	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-07	09-08007	ThISO	TH-228	1	TRG	SW/SD-11	pCi/g	0.8764	Y		0.1281	0.2805077	0.2805	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-07	09-08007	ThISO	TH-230	1	TRG	SW/SD-11	pCi/g	0.8979	Y	J	0.0827	0.2813081	0.2813	0					OK		EML Th-01 Modified		2.3	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-07	09-08007	ThISO	TH-232	1	TRG	SW/SD-11	pCi/g	0.6657	Y		0.1113	0.2320054	0.232	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-02	09-08007	UUISO	U-234	1	MBL	BLANK	pCi/g	0.0506	N		0.07494	0.0561704	0.05617	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08007-02	09-08007	UUISO	U-235	1	MBL	BLANK	pCi/g	0	N		0.04621	0.0035201	0.00352	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08007-02	09-08007	UUISO	U-238	1	MBL	BLANK	pCi/g	0.06648	Y		0.06369	0.0624706	0.06247	0					OK	INV	EML U-02 Modified		1.06		Y	n				MBL	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	UUISO	U-234	1	LCS	LCS	pCi/g	8.696	Y		0.1085	1.5644288	1.564	0	8.281	105.01	OK		OK		EML U-02 Modified	0.298	0.3		Y	n	105.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	UUISO	U-235	1	LCS	LCS	pCi/g	0.8654	Y		0.06013	0.3079216	0.3079	0					OK		EML U-02 Modified				Y					LCS	
09-08007-01	09-08007	UUISO	U-238	1	LCS	LCS	pCi/g	8.97	Y		0.08287	1.6054446	1.605	0	8.072	111.12	OK		OK		EML U-02 Modified	0.291	0.6		Y	n	111.1		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	UUISO	U-234	1	DUP	SW/SD-01	pCi/g	8.399	Y		0.05432	1.5594013	1.559	0				OK	OK		EML U-02 Modified		0.5		Y	n		13.8		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	UUISO	U-235	1	DUP	SW/SD-01	pCi/g	0.857	Y		0.1341	0.3226202	0.3226	0				INV	OK		EML U-02 Modified		0.6		Y	n		32.8		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	UUISO	U-238	1	DUP	SW/SD-01	pCi/g	7.641	Y		0.09235	1.4373604	1.437	0				OK	OK		EML U-02 Modified		0.1		Y	n		3.6		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	UUISO	U-234	1	DO	SW/SD-01	pCi/g	7.314	Y		0.1573	1.3613486	1.361	0					OK		EML U-02 Modified				Y	n				DO	
09-08007-04	09-08007	UUISO	U-235	1	DO	SW/SD-01	pCi/g	0.6152	Y		0.1061	0.2571131	0.2571	0					OK		EML U-02 Modified				Y	n				DO	
09-08007-04	09-08007	UUISO	U-238	1	DO	SW/SD-01	pCi/g	7.918	Y		0.08565	1.4553822	1.455	0					OK		EML U-02 Modified		5.4	n	Y	n				DO	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-13	09-08007	UUISO	U-234	1	TRG	SW/SD-02	pCi/g	10.43	Y		0.1401	1.8875113	1.887	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-13	09-08007	UUISO	U-235	1	TRG	SW/SD-02	pCi/g	1.107	Y		0.1143	0.374929	0.3749	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-13	09-08007	UUISO	U-238	1	TRG	SW/SD-02	pCi/g	11.27	Y		0.1395	2.019558	2.019	0					OK		EML U-02 Modified		5.5	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-14	09-08007	UUISO	U-234	1	TRG	SW/SD-04	pCi/g	0.5738	Y		0.087	0.1898154	0.1898	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-14	09-08007	UUISO	U-235	1	TRG	SW/SD-04	pCi/g	0.07409	Y		0.07098	0.0696207	0.06962	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-14	09-08007	UUISO	U-238	1	TRG	SW/SD-04	pCi/g	0.6314	Y		0.03355	0.1990178	0.199	0					OK		EML U-02 Modified		2.7	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-12	09-08007	UUISO	U-234	1	TRG	SW/SD-05	pCi/g	15.27	Y		0.1066	2.5028265	2.502	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-12	09-08007	UUISO	U-235	1	TRG	SW/SD-05	pCi/g	1.387	Y		0.05446	0.3935434	0.3935	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-12	09-08007	UUISO	U-238	1	TRG	SW/SD-05	pCi/g	14.11	Y		0.08793	2.3267591	2.326	0					OK		EML U-02 Modified		6.0	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-10	09-08007	UUISO	U-234	1	TRG	SW/SD-06	pCi/g	1.539	Y		0.07212	0.3609582	0.3609	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-10	09-08007	UUISO	U-235	1	TRG	SW/SD-06	pCi/g	0.1421	Y		0.08897	0.1008018	0.1008	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-10	09-08007	UUISO	U-238	1	TRG	SW/SD-06	pCi/g	1.525	Y		0.09268	0.3588575	0.3588	0					OK		EML U-02 Modified		4.0	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-11	09-08007	UUISO	U-234	1	TRG	SW/SD-07	pCi/g	2.308	Y		0.06564	0.467701	0.4676	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-11	09-08007	UUISO	U-235	1	TRG	SW/SD-07	pCi/g	0.2539	Y		0.04048	0.1283045	0.1283	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-11	09-08007	UUISO	U-238	1	TRG	SW/SD-07	pCi/g	2.327	Y		0.03267	0.4697023	0.4696	0					OK		EML U-02 Modified		4.8	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-06	09-08007	UUISO	U-234	1	TRG	SW/SD-08	pCi/g	4.753	Y		0.08956	0.8535348	0.8533	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-06	09-08007	UUISO	U-235	1	TRG	SW/SD-08	pCi/g	0.329	Y		0.1018	0.1585061	0.1585	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-06	09-08007	UUISO	U-238	1	TRG	SW/SD-08	pCi/g	4.426	Y		0.06305	0.804416	0.8042	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-08	09-08007	UUISO	U-234	1	TRG	SW/SD-08-D	pCi/g	3.888	Y		0.08773	0.7138879	0.7137	0					OK		EML U-02 Modified		0.8		Y	n		20.0		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	UUISO	U-235	1	TRG	SW/SD-08-D	pCi/g	0.3761	Y		0.1012	0.1642076	0.1642	0					OK		EML U-02 Modified		0.2		Y	n		13.4		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	UUISO	U-238	1	TRG	SW/SD-08-D	pCi/g	3.703	Y		0.06768	0.6854775	0.6853	0					OK		EML U-02 Modified	5.3	0.7	n	Y	n		17.8		TRG	Field duplicate.MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 1.98
09-08007-09	09-08007	UUISO	U-234	1	TRG	SW/SD-09	pCi/g	1.201	Y		0.09784	0.3217398	0.3217	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-09	09-08007	UUISO	U-235	1	TRG	SW/SD-09	pCi/g	0.04905	N	U	0.09998	0.0649003	0.0649	0					OK		EML U-02 Modified				n	Y				TRG	
09-08007-09	09-08007	UUISO	U-238	1	TRG	SW/SD-09	pCi/g	0.9948	Y		0.06888	0.2840309	0.284	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-05	09-08007	UUISO	U-234	1	TRG	SW/SD-10	pCi/g	0.9546	Y		0.1354	0.2766292	0.2766	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-05	09-08007	UUISO	U-235	1	TRG	SW/SD-10	pCi/g	0.05927	N	U	0.1169	0.0729504	0.07295	0					OK		EML U-02 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08007-05	09-08007	UUISO	U-238	1	TRG	SW/SD-10	pCi/g	1.071	Y		0.09432	0.2943346	0.2943	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-07	09-08007	UUISO	U-234	1	TRG	SW/SD-11	pCi/g	0.8336	Y		0.07705	0.2498247	0.2498	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-07	09-08007	UUISO	U-235	1	TRG	SW/SD-11	pCi/g	0.1197	Y		0.08113	0.0945813	0.09458	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-07	09-08007	UUISO	U-238	1	TRG	SW/SD-11	pCi/g	0.955	Y		0.08534	0.2717298	0.2717	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-02	09-08008	KPA_LIQ	TOTAL U	1	MBL	BLANK	ug/l	0	N		1.059167	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08008-01	09-08008	KPA_LIQ	TOTAL U	1	LCS	LCS	ug/l	8.06897	Y		1.059167	0.5264511	0.10231	0.06	8	100.86	OK		OK		ASTM D5174 Modified	0.16	0.1		Y	n	100.9		N	LCS	Z-Score (normalized dif.) < 1.98
09-08008-0H	09-08008	KPA_LIQ	TOTAL U	1	LCSH	LCS-H	ug/l	204.673	Y		1.059167	14.597186	6.44145	0.06	200	102.34	OK		OK				0.3		Y	n	102.3		Y	LCSH	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	KPA_LIQ	TOTAL U	1	DUP	BM-18	ug/l	45.6185	Y		1.059167	2.9964472	0.67434	0.06				OK	OK		ASTM D5174 Modified		0.4		Y	n		3.3		DUP	Z-Score (normalized dif.) < 1.98
09-08008-04	09-08008	KPA_LIQ	TOTAL U	1	DO	BM-18	ug/l	47.1339	Y	R	1.059167	3.0942015	0.68877	0.06					OK		ASTM D5174 Modified				Y	n				DO	Laboratory dilution issue.
09-08008-05	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-17	ug/l	20.1569	Y		1.059167	1.4479315	0.6575	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-08	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-4	ug/l	27.9779	Y	R	1.059167	2.0062506	0.9049	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-13	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-6	ug/l	30.7493	Y	R	1.059167	2.0236329	0.47142	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-14	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-6-F	ug/l	15.5967	Y	R	1.059167	1.02521	0.23382	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-09	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-7	ug/l	1.46621	Y		1.059167	0.0959149	0.01986	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-11	09-08008	KPA_LIQ	TOTAL U	1	TRG	L-3	ug/l	7.37481	Y		1.059167	0.4819433	0.09745	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-10	09-08008	KPA_LIQ	TOTAL U	1	TRG	L-3-F	ug/l	6.60699	Y		1.059167	0.4330265	0.09334	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-12	09-08008	KPA_LIQ	TOTAL U	1	TRG	L-4-F	ug/l	0.4039	N	U	1.059167	0.0268224	0.00716	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08008-07	09-08008	KPA_LIQ	TOTAL U	1	TRG	SW/SD-01	ug/l	144.374	Y		1.059167	10.36817	4.70351	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-06	09-08008	KPA_LIQ	TOTAL U	1	TRG	SW/SD-10	ug/l	49.1686	Y	R	1.059167	3.2260613	0.71077	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-02	09-08008	Ra226LC	RA-226	1	MBL	BLANK	pCi/l	0.31447	Y		0.150415	0.1235445	0.11948	0.1					OK	INV	EPA 903.1		2.55		Y	n				MBL	Z-Score > 1.98, potential MB bias
09-08008-01	09-08008	Ra226LC	RA-226	1	LCS	LCS	pCi/l	9.32222	Y		0.162671	1.0266144	0.43	0.1	10.18	91.534	OK		OK		EPA 903.1	0.468	0.8		Y	n	91.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	Ra226LC	RA-226	1	DUP	BM-17	pCi/l	1.06049	Y		0.157503	0.2642977	0.24209	0.1				INV	OK		EPA 903.1		1.3		Y	n		109.1		DUP	Z-Score (normalized dif.) < 1.98
09-08008-05	09-08008	Ra226LC	RA-226	1	DO	BM-17	pCi/l	1.61616	Y		0.251811	0.3542537	0.31524	0.1					OK		EPA 903.1		3.5	n	Y	n				DO	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08008-04	09-08008	Ra226LC	RA-226	1	TRG	BM-18	pCi/l	0.99443	Y	J	0.348302	0.3015827	0.28472	0.1					OK		EPA 903.1		2.1	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-08	09-08008	Ra226LC	RA-226	1	TRG	BM-4	pCi/l	0.31209	Y	R	0.305975	0.2037667	0.20136	0.1					OK		EPA 903.1		0.0	Y	Y	n				TRG	MB > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in MB
09-08008-13	09-08008	Ra226LC	RA-226	1	TRG	BM-6	pCi/l	0.95213	Y	J	0.441343	0.3596182	0.34679	0.1					OK		EPA 903.1		1.7	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-14	09-08008	Ra226LC	RA-226	1	TRG	BM-6-F	pCi/l	0.53406	Y	J	0.232933	0.2096213	0.2027	0.1					OK		EPA 903.1		0.9	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-09	09-08008	Ra226LC	RA-226	1	TRG	BM-7	pCi/l	1.08511	Y	J	0.396195	0.3343364	0.31624	0.1					OK		EPA 903.1		2.2	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-11	09-08008	Ra226LC	RA-226	1	TRG	L-3	pCi/l	1.35219	Y		0.379494	0.3690342	0.34337	0.1					OK		EPA 903.1		2.7	Y	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08008-10	09-08008	Ra226LC	RA-226	1	TRG	L-3-F	pCi/l	1.18152	Y	J	0.691351	0.5032837	0.48922	0.1					INV		EPA 903.1		1.7	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-12	09-08008	Ra226LC	RA-226	1	TRG	L-4-F	pCi/l	0.52342	Y	J	0.228064	0.1955676	0.18843	0.1					OK		EPA 903.1		0.9	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-07	09-08008	Ra226LC	RA-226	1	TRG	SW/SD-01	pCi/l	0.60819	Y	J	0.204751	0.1998723	0.19039	0.1					OK		EPA 903.1		1.3	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-06	09-08008	Ra226LC	RA-226	1	TRG	SW/SD-10	pCi/l	1.90281	Y		0.435064	0.4729611	0.433	0.1					OK		EPA 903.1		3.2	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08008-02	09-08008	Ra228	RA-228	1	MBL	BLANK	pCi/l	0.65505	N		0.811523	0.4146365	0.41413	0.03					OK	OK	EPA 904.0 Modified				n	n				MBL	MB<MDA
09-08008-01	09-08008	Ra228	RA-228	1	LCS	LCS	pCi/l	16.7733	Y		0.859697	1.0778784	0.94144	0.03	18.54	90.474	OK		OK		EPA 904.0 Modified	0.946	1.2		Y	n	90.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	Ra228	RA-228	1	DUP	SW/SD-10	pCi/l	0.79727	N		0.984158	0.5053031	0.50469	0.03				INV	OK		EPA 904.0 Modified		0.4		n	n		5.8		DUP	Z-Score (normalized dif.) < 1.98
09-08008-06	09-08008	Ra228	RA-228	1	DO	SW/SD-10	pCi/l	0.53644	N	U	1.042212	0.5161591	0.51589	0.03					OK		EPA 904.0 Modified				n	n				DO	
09-08008-05	09-08008	Ra228	RA-228	1	TRG	BM-17	pCi/l	0.9427	Y		0.83725	0.4411757	0.44019	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-04	09-08008	Ra228	RA-228	1	TRG	BM-18	pCi/l	0.75215	N	U	0.870672	0.4483087	0.44769	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-08	09-08008	Ra228	RA-228	1	TRG	BM-4	pCi/l	0.90544	N	U	0.917793	0.4785611	0.47772	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-13	09-08008	Ra228	RA-228	1	TRG	BM-6	pCi/l	0.96393	N	U	1.195533	0.6117601	0.61102	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-14	09-08008	Ra228	RA-228	1	TRG	BM-6-F	pCi/l	2.10056	Y		0.903803	0.5322545	0.52818	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-09	09-08008	Ra228	RA-228	1	TRG	BM-7	pCi/l	0.33863	N	U	0.732584	0.3609858	0.36083	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08008-11	09-08008	Ra228	RA-228	1	TRG	L-3	pCi/l	0.90738	N	U	1.341275	0.6711682	0.67057	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-10	09-08008	Ra228	RA-228	1	TRG	L-3-F	pCi/l	0.79123	Y		0.74761	0.3956218	0.39485	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-12	09-08008	Ra228	RA-228	1	TRG	L-4-F	pCi/l	0.98525	N	U	1.136699	0.5822859	0.58147	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-07	09-08008	Ra228	RA-228	1	TRG	SW/SD-01	pCi/l	1.02599	Y		0.789717	0.4267883	0.42558	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-02	09-08008	ThISO	TH-227	1	MBL	BLANK	pCi/l	0.01947	N		0.1564	0.06295	0.06295	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08008-02	09-08008	ThISO	TH-228	1	MBL	BLANK	pCi/l	-0.0089	N		0.1424	0.03784	0.03784	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08008-02	09-08008	ThISO	TH-230	1	MBL	BLANK	pCi/l	0.1251	N		0.1937	0.1176004	0.1176	0					OK	INV	EML Th-01 Modified				n	n				MBL	MB<MDA
09-08008-02	09-08008	ThISO	TH-232	1	MBL	BLANK	pCi/l	0.03077	N		0.07781	0.0483101	0.04831	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08008-01	09-08008	ThISO	TH-228	1	LCS	LCS	pCi/l	4.553	Y		0.1004	0.8433691	0.8433	0	4.791	95.036	OK		OK		EML Th-01 Modified	0.172	0.3		Y	n	95.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-01	09-08008	ThISO	TH-230	1	LCS	LCS	pCi/l	4.972	Y		0.1084	0.9087765	0.9087	0	5.356	92.833	OK		OK		EML Th-01 Modified	0.145	0.4		Y	n	92.8		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-01	09-08008	ThISO	TH-232	1	LCS	LCS	pCi/l	4.304	Y		0.05709	0.8038648	0.8038	0	4.791	89.839	OK		OK		EML Th-01 Modified	0.172	0.6		Y	n	89.8		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	ThISO	TH-227	1	DUP	BM-18	pCi/l	0.1589	Y		0.152	0.1510005	0.151	0				INV	OK		EML Th-01 Modified		0.4		Y	n		241.9		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-03	09-08008	ThISO	TH-228	1	DUP	BM-18	pCi/l	0.07561	N		0.2098	0.1161001	0.1161	0				INV	OK		EML Th-01 Modified		0.2		n	Y		80.1		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-03	09-08008	ThISO	TH-230	1	DUP	BM-18	pCi/l	0.112	N		0.1936	0.1317003	0.1317	0				INV	OK		EML Th-01 Modified		1.0		n	Y		20.8		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-03	09-08008	ThISO	TH-232	1	DUP	BM-18	pCi/l	-0.0218	N		0.2097	0.0222201	0.02222	0				INV	OK		EML Th-01 Modified		0.1		n	Y		293.7		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-04	09-08008	ThISO	TH-227	1	DO	BM-18	pCi/l	-0.0151	N	U	0.2401	0.06386	0.06386	0					OK		EML Th-01 Modified				n	Y				DO	
09-08008-04	09-08008	ThISO	TH-228	1	DO	BM-18	pCi/l	0.03235	N	U	0.1937	0.08264	0.08264	0					OK		EML Th-01 Modified				n	Y				DO	
09-08008-04	09-08008	ThISO	TH-230	1	DO	BM-18	pCi/l	0.138	N	U	0.2053	0.1402004	0.1402	0					OK		EML Th-01 Modified				n	Y				DO	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08008-04	09-08008	ThISO	TH-232	1	DO	**BM-18**	pCi/l	**0.1148**	N	U	0.1936	0.1274003	0.1274	0					OK		EML Th-01 Modified				n	Y				DO	
09-08008-05	09-08008	ThISO	TH-227	1	TRG	**BM-17**	pCi/l	**0.07311**	N	U	0.2502	0.1230001	0.123	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-05	09-08008	ThISO	TH-228	1	TRG	**BM-17**	pCi/l	**0.1217**	N	U	0.2018	0.1351003	0.1351	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-05	09-08008	ThISO	TH-230	1	TRG	**BM-17**	pCi/l	**0.3508**	Y		0.2021	0.2202016	0.2202	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-05	09-08008	ThISO	TH-232	1	TRG	**BM-17**	pCi/l	**0.03804**	N	U	0.1887	0.08418	0.08418	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-08	09-08008	ThISO	TH-227	1	TRG	**BM-4**	pCi/l	**0.09094**	N	U	0.2258	0.1260002	0.126	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-08	09-08008	ThISO	TH-228	1	TRG	**BM-4**	pCi/l	**-0.0463**	N	U	0.2517	0.0321602	0.03216	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-08	09-08008	ThISO	TH-230	1	TRG	**BM-4**	pCi/l	**0.2477**	Y		0.1949	0.1862009	0.1862	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-08	09-08008	ThISO	TH-232	1	TRG	**BM-4**	pCi/l	**0.06388**	N	U	0.208	0.1061001	0.1061	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-13	09-08008	ThISO	TH-227	1	TRG	**BM-6**	pCi/l	**0.01765**	N	U	0.2169	0.07517	0.07517	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-13	09-08008	ThISO	TH-228	1	TRG	**BM-6**	pCi/l	**0.05914**	N	U	0.1902	0.1029001	0.1029	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-13	09-08008	ThISO	TH-230	1	TRG	**BM-6**	pCi/l	**0.3102**	Y		0.1625	0.2207012	0.2207	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-13	09-08008	ThISO	TH-232	1	TRG	**BM-6**	pCi/l	**-0.006**	N	U	0.1623	0.01199	0.01199	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-14	09-08008	ThISO	TH-227	1	TRG	**BM-6-F**	pCi/l	**0.05145**	N	U	0.1678	0.0895101	0.08951	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-14	09-08008	ThISO	TH-228	1	TRG	**BM-6-F**	pCi/l	**-0.011**	N	U	0.2456	0.06809	0.06809	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-14	09-08008	ThISO	TH-230	1	TRG	**BM-6-F**	pCi/l	**0.3223**	Y		0.1639	0.2109014	0.2109	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-14	09-08008	ThISO	TH-232	1	TRG	**BM-6-F**	pCi/l	**0.1053**	N	U	0.182	0.1238003	0.1238	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-09	09-08008	ThISO	TH-227	1	TRG	**BM-7**	pCi/l	**0.1637**	N	U	0.1795	0.1505005	0.1505	0					OK		EML Th-01 Modified				n	n				TRG	
09-08008-09	09-08008	ThISO	TH-228	1	TRG	**BM-7**	pCi/l	**0.02333**	N	U	0.2795	0.1086	0.1086	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-09	09-08008	ThISO	TH-230	1	TRG	**BM-7**	pCi/l	**0.2518**	Y		0.1577	0.181801	0.1818	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-09	09-08008	ThISO	TH-232	1	TRG	**BM-7**	pCi/l	**0.02409**	N	U	0.1343	0.05907	0.05907	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-11	09-08008	ThISO	TH-227	1	TRG	**L-3**	pCi/l	**0.00758**	N	U	0.2829	0.1016	0.1016	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-11	09-08008	ThISO	TH-228	1	TRG	**L-3**	pCi/l	**-0.023**	N	U	0.1861	0.0209901	0.02099	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-11	09-08008	ThISO	TH-230	1	TRG	**L-3**	pCi/l	**0.2611**	Y		0.2072	0.184901	0.1849	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-11	09-08008	ThISO	TH-232	1	TRG	**L-3**	pCi/l	**-0.009**	N	U	0.1441	0.0129	0.0129	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-10	09-08008	ThISO	TH-227	1	TRG	**L-3-F**	pCi/l	**0.08306**	N	U	0.201	0.1184002	0.1184	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-10	09-08008	ThISO	TH-228	1	TRG	**L-3-F**	pCi/l	**-0.0007**	N	U	0.2408	0.07152	0.07152	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-10	09-08008	ThISO	TH-230	1	TRG	**L-3-F**	pCi/l	**0.2167**	Y		0.1765	0.1784007	0.1784	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-10	09-08008	ThISO	TH-232	1	TRG	**L-3-F**	pCi/l	**0.04286**	N	U	0.2126	0.0949001	0.0949	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-12	09-08008	ThISO	TH-227	1	TRG	**L-4-F**	pCi/l	**0.0683**	N	U	0.09242	0.0976001	0.0976	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-12	09-08008	ThISO	TH-228	1	TRG	**L-4-F**	pCi/l	**0.08987**	N	U	0.1804	0.1196002	0.1196	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-12	09-08008	ThISO	TH-230	1	TRG	**L-4-F**	pCi/l	**0.2885**	Y		0.1806	0.2090011	0.209	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-12	09-08008	ThISO	TH-232	1	TRG	**L-4-F**	pCi/l	**0.0665**	N	U	0.09011	0.0950301	0.09503	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-227	1	TRG	**SW/SD-01**	pCi/l	**0.1583**	N	U	0.2446	0.1589004	0.1589	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-228	1	TRG	**SW/SD-01**	pCi/l	**0.04699**	N	U	0.2293	0.1034001	0.1034	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-230	1	TRG	**SW/SD-01**	pCi/l	**0.08891**	N	U	0.1975	0.1162002	0.1162	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-232	1	TRG	**SW/SD-01**	pCi/l	**0.02339**	N	U	0.1304	0.05734	0.05734	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-06	09-08008	ThISO	TH-227	1	TRG	**SW/SD-10**	pCi/l	**0.1084**	N	U	0.3137	0.1613002	0.1613	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-06	09-08008	ThISO	TH-228	1	TRG	**SW/SD-10**	pCi/l	**0.02121**	N	U	0.3335	0.1266	0.1266	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-06	09-08008	ThISO	TH-230	1	TRG	**SW/SD-10**	pCi/l	**0.1574**	N	U	0.1832	0.1553004	0.1553	0					OK		EML Th-01 Modified				n	n				TRG	
09-08008-06	09-08008	ThISO	TH-232	1	TRG	**SW/SD-10**	pCi/l	**0.09541**	N	U	0.156	0.1190002	0.119	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-02	09-08008	UUISO	U-234	1	MBL	**BLANK**	pCi/l	**0.08927**	N		0.1287	0.0861608	0.08616	0					OK	INV	EML U-02 Modified				n	n				MBL	MB<MDA
09-08008-02	09-08008	UUISO	U-235	1	MBL	**BLANK**	pCi/l	**-0.0033**	N		0.09036	0.006659	0.00666	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08008-02	09-08008	UUISO	U-238	1	MBL	**BLANK**	pCi/l	**0.06037**	N		0.07294	0.0639105	0.06391	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08008-01	09-08008	UUISO	U-234	1	LCS	**LCS**	pCi/l	**7.696**	Y		0.08015	1.3124004	1.312	0	8.264	93.128	OK		OK		EML U-02 Modified	0.298	**0.4**		Y	n	**93.1**		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-01	09-08008	UUISO	U-235	1	LCS	**LCS**	pCi/l	**0.5986**	Y		0.08439	0.227114	0.2271	0					OK		EML U-02 Modified				Y					LCS	
09-08008-01	09-08008	UUISO	U-238	1	LCS	**LCS**	pCi/l	**8.19**	Y		0.08878	1.3844298	1.384	0	8.055	101.67	OK		OK		EML U-02 Modified	0.29	**0.1**		Y	n	**101.7**		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	UUISO	U-234	1	DUP	**BM-18**	pCi/l	**11.67**	Y		0.5477	2.5484741	2.548	0				OK	OK		EML U-02 Modified		**0.5**		Y	n		**15.2**		DUP	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	UUISO	U-235	1	DUP	**BM-18**	pCi/l	**0.3176**	N		0.4706	0.3530025	0.353	0				INV	OK		EML U-02 Modified		**0.7**		n	Y		**85.5**		DUP	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	UUISO	U-238	1	DUP	**BM-18**	pCi/l	**9.363**	Y		0.3798	2.1633595	2.163	0				INV	OK		EML U-02 Modified		**0.6**		Y	n		**21.2**		DUP	Z-Score (normalized dif.) < 1.98
09-08008-04	09-08008	UUISO	U-234	1	DO	**BM-18**	pCi/l	**10.02**	Y		0.7438	2.4283668	2.428	0					OK		EML U-02 Modified				Y	n				DO	
09-08008-04	09-08008	UUISO	U-235	1	DO	**BM-18**	pCi/l	**0.7921**	Y		0.4682	0.5871095	0.5871	0					OK		EML U-02 Modified				Y	n				DO	
09-08008-04	09-08008	UUISO	U-238	1	DO	**BM-18**	pCi/l	**7.566**	Y		0.4427	1.9842559	1.984	0					OK		EML U-02 Modified				Y	n				DO	
09-08008-05	09-08008	UUISO	U-234	1	TRG	**BM-17**	pCi/l	**9.582**	Y		0.4609	2.0653944	2.065	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-05	09-08008	UUISO	U-235	1	TRG	**BM-17**	pCi/l	**0.3404**	N	U	0.3961	0.3324031	0.3324	0					OK		EML U-02 Modified				n	n				TRG	
09-08008-05	09-08008	UUISO	U-238	1	TRG	**BM-17**	pCi/l	**8.078**	Y		0.1598	1.8193182	1.819	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-08	09-08008	UUISO	U-234	1	TRG	**BM-4**	pCi/l	**13.06**	Y		0.4446	2.7535495	2.753	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-08	09-08008	UUISO	U-235	1	TRG	**BM-4**	pCi/l	**1.312**	Y		0.4543	0.7010218	0.701	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-08	09-08008	UUISO	U-238	1	TRG	**BM-4**	pCi/l	**14.24**	Y		0.4079	2.9376124	2.937	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-13	09-08008	UUISO	U-234	1	TRG	**BM-6**	pCi/l	**0.4461**	N	U	0.6608	0.4975035	0.4975	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-13	09-08008	UUISO	U-235	1	TRG	**BM-6**	pCi/l	**0.1248**	N	U	0.6958	0.3059005	0.3059	0					OK		EML U-02 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08008-13	09-08008	UUISO	U-238	1	TRG	BM-6	pCi/l	0.1808	N	U	0.7319	0.3521008	0.3521	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-14	09-08008	UUISO	U-234	1	TRG	BM-6-F	pCi/l	0.4542	N	U	0.785	0.5329034	0.5329	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-14	09-08008	UUISO	U-235	1	TRG	BM-6-F	pCi/l	0.3725	N	U	1.051	0.5710022	0.571	0					INV		EML U-02 Modified				n	Y				TRG	
09-08008-14	09-08008	UUISO	U-238	1	TRG	BM-6-F	pCi/l	-0.0026	N	U	0.9599	0.2808	0.2808	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-09	09-08008	UUISO	U-234	1	TRG	BM-7	pCi/l	1.039	Y		0.3189	0.5226183	0.5226	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-09	09-08008	UUISO	U-235	1	TRG	BM-7	pCi/l	0.2177	Y		0.1967	0.2534017	0.2534	0					OK		EML U-02 Modified				Y	Y	0.418			TRG	
09-08008-09	09-08008	UUISO	U-238	1	TRG	BM-7	pCi/l	0.5073	Y		0.3176	0.3603063	0.3603	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-11	09-08008	UUISO	U-234	1	TRG	L-3	pCi/l	3.543	Y		0.4697	1.1960931	1.196	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-11	09-08008	UUISO	U-235	1	TRG	L-3	pCi/l	0.2719	N	U	0.4446	0.3371019	0.3371	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-11	09-08008	UUISO	U-238	1	TRG	L-3	pCi/l	2.985	Y		0.4677	1.0780733	1.078	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-10	09-08008	UUISO	U-234	1	TRG	L-3-F	pCi/l	2.187	Y		0.2044	0.8807482	0.8807	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-10	09-08008	UUISO	U-235	1	TRG	L-3-F	pCi/l	0.2791	Y		0.2521	0.3252021	0.3252	0					OK		EML U-02 Modified				Y	Y				TRG	
09-08008-10	09-08008	UUISO	U-238	1	TRG	L-3-F	pCi/l	2.852	Y		0.5562	1.0390694	1.039	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-12	09-08008	UUISO	U-234	1	TRG	L-4-F	pCi/l	-0.063	N	U	1.004	0.2666001	0.2666	0					INV		EML U-02 Modified				n	Y				TRG	
09-08008-12	09-08008	UUISO	U-235	1	TRG	L-4-F	pCi/l	-0.0996	N	U	0.9578	0.1011009	0.1011	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-12	09-08008	UUISO	U-238	1	TRG	L-4-F	pCi/l	-0.1005	N	U	0.8266	0.091621	0.09162	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-07	09-08008	UUISO	U-234	1	TRG	SW/SD-01	pCi/l	57.8	Y		0.9793	10.342866	10.34	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-07	09-08008	UUISO	U-235	1	TRG	SW/SD-01	pCi/l	4.736	Y		1.001	2.009099	2.009	0					INV		EML U-02 Modified				Y	n				TRG	
09-08008-07	09-08008	UUISO	U-238	1	TRG	SW/SD-01	pCi/l	56.88	Y		1.16	10.202813	10.2	0					INV		EML U-02 Modified				Y	n				TRG	
09-08008-06	09-08008	UUISO	U-234	1	TRG	SW/SD-10	pCi/l	7.978	Y		0.7122	2.3352418	2.335	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-06	09-08008	UUISO	U-235	1	TRG	SW/SD-10	pCi/l	0.2685	N	U	0.3638	0.3825017	0.3825	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-06	09-08008	UUISO	U-238	1	TRG	SW/SD-10	pCi/l	8.017	Y		0.2936	2.3322445	2.332	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-02	09-08009	KPA_LIQ	TOTAL U	1	MBL	BLANK	ug/l	0	N		1	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08009-01	09-08009	KPA_LIQ	TOTAL U	1	LCS	LCS	ug/l	8.22436	Y		1	0.5362458	0.1025	0.06	8	102.8	OK		OK		ASTM D5174 Modified	0.16	0.4		Y	n	102.8		N	LCS	Z-Score (normalized dif.) < 1.98
09-08009-0H	09-08009	KPA_LIQ	TOTAL U	1	LCSH	LCS-H	ug/l	196.379	Y		1	14.03815	6.25375	0.06	200	98.189	OK		OK				0.3		Y	n	98.2		Y	LCSH	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	KPA_LIQ	TOTAL U	1	DUP	BM-17-F	ug/l	17.0563	Y		1	1.2288026	0.56424	0.06				OK	OK		ASTM D5174 Modified		0.8		Y	n		7.8		DUP	Z-Score (normalized dif.) < 1.98
09-08009-04	09-08009	KPA_LIQ	TOTAL U	1	DO	BM-17-F	ug/l	18.4346	Y		1	1.3250639	0.60318	0.06					OK		ASTM D5174 Modified				Y	n				DO	
09-08009-13	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-16	ug/l	26.4563	Y		1	1.901405	0.8651	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-14	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-16-F	ug/l	29.3416	Y		1	2.1034277	0.94765	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-07	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-18-F	ug/l	35.3711	Y		1	2.3203255	0.50926	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-18	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-19	ug/l	27.0678	Y		1	1.9397395	0.87269	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-17	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-7-F	ug/l	1.03339	Y		1	0.067708	0.0145	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-05	09-08009	KPA_LIQ	TOTAL U	1	TRG	L-2	ug/l	6.39801	Y		1	0.423065	0.10638	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-06	09-08009	KPA_LIQ	TOTAL U	1	TRG	L-2-F	ug/l	49.4745	Y	R	1	3.2724235	0.82635	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08009-11	09-08009	KPA_LIQ	TOTAL U	1	TRG	L-4	ug/l	0.22229	N	U	1	0.0147218	0.00379	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08009-16	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-06	ug/l	76.0859	Y		1	5.4445273	2.43534	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-15	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-07	ug/l	23.4253	Y		1	1.5390887	0.34804	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-12	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-08	ug/l	19.3179	Y		1	1.2667705	0.27597	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-08	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-08-D	ug/l	23.2177	Y		1	1.5234031	0.3358	0.06					OK		ASTM D5174 Modified		2.0		Y	n		18.3		TRG	Field Duplicate: Z-Score (normalized dif.) > 1.98
09-08009-09	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-09	ug/l	107.562	Y	R	1	7.0659591	1.59341	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08009-10	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-11	ug/l	19.1882	Y		1	1.2585495	0.27542	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-02	09-08009	Ra226LC	RA-226	1	MBL	BLANK	pCi/l	0.03968	N		0.121842	0.070209	0.0701	0.1					OK	INV	EPA 903.1				n	Y				MBL	MB<MDA
09-08009-01	09-08009	Ra226LC	RA-226	1	LCS	LCS	pCi/l	10.9653	Y		0.216865	1.227548	0.55181	0.1	10.2	107.48	OK		OK		EPA 903.1	0.469	0.6		Y	n	107.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	Ra226LC	RA-226	1	DUP	BM-17-F	pCi/l	0.36701	N		0.375024	0.2517016	0.24901	0.1				OK	OK		EPA 903.1		0.0		n	n		2.0		DUP	Z-Score (normalized dif.) < 1.98
09-08009-04	09-08009	Ra226LC	RA-226	1	DO	BM-17-F	pCi/l	0.35981	Y		0.282452	0.1999421	0.19668	0.1					OK		EPA 903.1				Y	n				DO	
09-08009-13	09-08009	Ra226LC	RA-226	1	TRG	BM-16	pCi/l	0.71186	Y		0.387231	0.2862168	0.27722	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-14	09-08009	Ra226LC	RA-226	1	TRG	BM-16-F	pCi/l	0.54844	Y		0.297708	0.2225317	0.21567	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-07	09-08009	Ra226LC	RA-226	1	TRG	BM-18-F	pCi/l	0.89834	Y		0.407986	0.3409551	0.32891	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-18	09-08009	Ra226LC	RA-226	1	TRG	BM-19	pCi/l	0.33789	N	U	0.367213	0.2406811	0.2383	0.1					OK		EPA 903.1				n	n				TRG	
09-08009-17	09-08009	Ra226LC	RA-226	1	TRG	BM-7-F	pCi/l	1.68016	Y		0.307529	0.3975542	0.36031	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-05	09-08009	Ra226LC	RA-226	1	TRG	L-2	pCi/l	0.4527	Y		0.359119	0.2488163	0.24466	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-06	09-08009	Ra226LC	RA-226	1	TRG	L-2-F	pCi/l	1.3298	Y		0.518567	0.4481366	0.42795	0.1					INV		EPA 903.1				Y	n				TRG	
09-08009-11	09-08009	Ra226LC	RA-226	1	TRG	L-4	pCi/l	0.3368	Y		0.249007	0.1852241	0.18214	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-16	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-06	pCi/l	0.43553	Y		0.293052	0.2156648	0.21122	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-15	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-07	pCi/l	1.21331	Y		0.423353	0.4160162	0.39793	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-12	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-08	pCi/l	0.60272	Y		0.227754	0.2057232	0.1967	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-08	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-08-D	pCi/l	1.29881	Y		0.25907	0.3143565	0.28627	0.1					OK		EPA 903.1		1.9		Y	n		64.4		TRG	Field Duplicate: Z-Score (normalized dif.) 1.98
09-08009-09	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-09	pCi/l	0.36336	Y		0.356961	0.2341278	0.23129	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-10	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-11	pCi/l	0.74124	Y		0.347285	0.2779103	0.26784	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-02	09-08009	Ra228	RA-228	1	MBL	BLANK	pCi/l	0.66638	N		1.004285	0.5042407	0.50381	0.03					OK	OK	EPA 904.0 Modified				n	n				MBL	MB<MDA
09-08009-01	09-08009	Ra228	RA-228	1	LCS	LCS	pCi/l	15.7154	Y		1.047165	1.1322402	1.01986	0.03	18.55	84.697	OK		OK		EPA 904.0 Modified	0.946	1.9		Y	n	84.7		Y	LCS	Z-Score (normalized dif.) < 1.98

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08009-03	09-08009	Ra228	RA-228	1	DUP	L-2	pCi/l	0.32547	N		1.262467	0.6063164	0.60623	0.03				INV	OK		EPA 904.0 Modified		0.7		n	Y		92.7		DUP	Z-Score (normalized dif.) < 1.98
09-08009-05	09-08009	Ra228	RA-228	1	DO	L-2	pCi/l	0.88798	N	U	1.171827	0.5962853	0.59564	0.03					OK		EPA 904.0 Modified				n	n				DO	
09-08009-13	09-08009	Ra228	RA-228	1	TRG	BM-16	pCi/l	0.13985	N	U	1.122981	0.5329505	0.53293	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-14	09-08009	Ra228	RA-228	1	TRG	BM-16-F	pCi/l	1.25366	Y		1.040033	0.5602567	0.55888	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08009-04	09-08009	Ra228	RA-228	1	TRG	BM-17-F	pCi/l	0.62599	N	U	0.959964	0.4837826	0.48339	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08009-07	09-08009	Ra228	RA-228	1	TRG	BM-18-F	pCi/l	0.95594	Y		0.837632	0.4450415	0.44403	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08009-18	09-08009	Ra228	RA-228	1	TRG	BM-19	pCi/l	0.55608	N	U	0.814866	0.4121171	0.41175	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08009-17	09-08009	Ra228	RA-228	1	TRG	BM-7-F	pCi/l	0.45328	N	U	1.306677	0.6347473	0.63459	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-06	09-08009	Ra228	RA-228	1	TRG	L-2-F	pCi/l	4.53719	N	U	7.873385	3.9324857	3.92992	0.03					INV		EPA 904.0 Modified				n	n				TRG	
09-08009-11	09-08009	Ra228	RA-228	1	TRG	L-4	pCi/l	2.37318	N	U	3.473733	1.7413824	1.7398	0.03					INV		EPA 904.0 Modified				n	n				TRG	
09-08009-16	09-08009	Ra228	RA-228	1	TRG	SW/SD-06	pCi/l	0.68893	N	U	1.455468	0.7164052	0.71608	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-15	09-08009	Ra228	RA-228	1	TRG	SW/SD-07	pCi/l	0.43418	N	U	1.333858	0.6465114	0.64637	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-12	09-08009	Ra228	RA-228	1	TRG	SW/SD-08	pCi/l	0.80675	N	U	1.529559	0.7571478	0.75673	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08009-08	09-08009	Ra228	RA-228	1	TRG	SW/SD-08-D	pCi/l	1.00842	Y		0.872636	0.465819	0.46475	0.03					OK		EPA 904.0 Modified		0.2		Y	n		22.2		TRG	Field Duplicate, Z-Score (normalized dif.) < 1.98
09-08009-09	09-08009	Ra228	RA-228	1	TRG	SW/SD-09	pCi/l	0.12881	N	U	1.001012	0.473585	0.47357	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-10	09-08009	Ra228	RA-228	1	TRG	SW/SD-11	pCi/l	-0.2438	N	U	2.630376	1.2153354	1.21531	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-02	09-08009	ThISO	TH-227	1	MBL	BLANK	pCi/l	0.00209	N		0.1459	0.04899	0.04899	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	ThISO	TH-228	1	MBL	BLANK	pCi/l	-0.0083	N		0.1328	0.03529	0.03529	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	ThISO	TH-230	1	MBL	BLANK	pCi/l	0.03819	N		0.1806	0.0811401	0.08114	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	ThISO	TH-232	1	MBL	BLANK	pCi/l	0.02871	N		0.07258	0.0450501	0.04505	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-01	09-08009	ThISO	TH-228	1	LCS	LCS	pCi/l	4.568	Y		0.1027	0.850369	0.8503	0	4.907	93.083	OK		OK		EML Th-01 Modified	0.177	0.4		Y	n	93.1		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	ThISO	TH-230	1	LCS	LCS	pCi/l	4.884	Y		0.1109	0.8998746	0.8998	0	5.358	91.154	OK		OK		EML Th-01 Modified	0.145	0.5		Y	n	91.2		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	ThISO	TH-232	1	LCS	LCS	pCi/l	4.049	Y		0.05839	0.76836	0.7683	0	4.907	82.507	OK		OK		EML Th-01 Modified	0.177	1.1		Y	n	82.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	ThISO	TH-227	1	DUP	L-2-F	pCi/l	0.01297	N		0.2336	0.08317	0.08317	0				INV	OK		EML Th-01 Modified		0.8		n	Y		98.2		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-03	09-08009	ThISO	TH-228	1	DUP	L-2-F	pCi/l	0.1411	N		0.1885	0.1385004	0.1385	0				INV	OK		EML Th-01 Modified		0.2		n	n		108.2		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-03	09-08009	ThISO	TH-230	1	DUP	L-2-F	pCi/l	0.1073	N		0.1997	0.1243003	0.1243	0				INV	OK		EML Th-01 Modified		1.0		n	Y		73.1		DUP	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	ThISO	TH-232	1	DUP	L-2-F	pCi/l	-0.0229	N		0.1884	0.0209301	0.02093	0				INV	OK		EML Th-01 Modified		0.6		n	Y		-136.9		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-06	09-08009	ThISO	TH-227	1	DO	L-2-F	pCi/l	0.03801	N	U	0.2187	0.09371	0.09371	0					OK		EML Th-01 Modified				n	Y				DO	
09-08009-06	09-08009	ThISO	TH-228	1	DO	L-2-F	pCi/l	0.04204	N	U	0.205	0.0925301	0.09253	0					OK		EML Th-01 Modified				n	Y				DO	
09-08009-06	09-08009	ThISO	TH-230	1	DO	L-2-F	pCi/l	0.2309	Y		0.1766	0.1664009	0.1664	0					OK		EML Th-01 Modified				Y	n				DO	
09-08009-06	09-08009	ThISO	TH-232	1	DO	L-2-F	pCi/l	-0.0043	N	U	0.1166	0.008607	0.00861	0					OK		EML Th-01 Modified				n	Y				DO	
09-08009-13	09-08009	ThISO	TH-227	1	TRG	BM-16	pCi/l	-0.0006	N	U	0.2034	0.05957	0.05957	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-13	09-08009	ThISO	TH-228	1	TRG	BM-16	pCi/l	0.0313	N	U	0.1874	0.07996	0.07996	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-13	09-08009	ThISO	TH-230	1	TRG	BM-16	pCi/l	0.1695	N	U	0.1755	0.1466006	0.1466	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-13	09-08009	ThISO	TH-232	1	TRG	BM-16	pCi/l	0.04898	N	U	0.1239	0.0768201	0.07682	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-14	09-08009	ThISO	TH-227	1	TRG	BM-16-F	pCi/l	0.209	N	U	0.2584	0.1920006	0.192	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-14	09-08009	ThISO	TH-228	1	TRG	BM-16-F	pCi/l	-0.0242	N	U	0.2986	0.07873	0.07873	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-14	09-08009	ThISO	TH-230	1	TRG	BM-16-F	pCi/l	0.1074	N	U	0.2385	0.1405002	0.1405	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-14	09-08009	ThISO	TH-232	1	TRG	BM-16-F	pCi/l	-0.0116	N	U	0.1844	0.01653	0.01653	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-04	09-08009	ThISO	TH-227	1	TRG	BM-17-F	pCi/l	-0.0162	N	U	0.2586	0.06878	0.06878	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-04	09-08009	ThISO	TH-228	1	TRG	BM-17-F	pCi/l	0.06519	N	U	0.2086	0.1083001	0.1083	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-04	09-08009	ThISO	TH-230	1	TRG	BM-17-F	pCi/l	0.1835	N	U	0.2088	0.1635006	0.1635	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-04	09-08009	ThISO	TH-232	1	TRG	BM-17-F	pCi/l	0.00952	N	U	0.195	0.06296	0.06296	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-07	09-08009	ThISO	TH-227	1	TRG	BM-18-F	pCi/l	0.06339	N	U	0.2368	0.1148001	0.1148	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-07	09-08009	ThISO	TH-228	1	TRG	BM-18-F	pCi/l	0.04664	N	U	0.2639	0.1150001	0.115	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-07	09-08009	ThISO	TH-230	1	TRG	BM-18-F	pCi/l	0.2286	Y		0.2043	0.1837008	0.1837	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-07	09-08009	ThISO	TH-232	1	TRG	BM-18-F	pCi/l	0.00467	N	U	0.2181	0.06669	0.06669	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-227	1	TRG	BM-19	pCi/l	0.07983	N	U	0.2249	0.1226001	0.1226	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-228	1	TRG	BM-19	pCi/l	0.05077	N	U	0.2022	0.0990101	0.09901	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-230	1	TRG	BM-19	pCi/l	0.07787	N	U	0.2197	0.1196001	0.1196	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-232	1	TRG	BM-19	pCi/l	0.01641	N	U	0.2021	0.06994	0.06994	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-17	09-08009	ThISO	TH-227	1	TRG	BM-7-F	pCi/l	0.1521	N	U	0.2458	0.1604004	0.1604	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-17	09-08009	ThISO	TH-228	1	TRG	BM-7-F	pCi/l	0.06138	N	U	0.2882	0.1312001	0.1312	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-17	09-08009	ThISO	TH-230	1	TRG	BM-7-F	pCi/l	0.2311	Y		0.1861	0.1814008	0.1814	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-17	09-08009	ThISO	TH-232	1	TRG	BM-7-F	pCi/l	-0.0111	N	U	0.2505	0.06838	0.06838	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-05	09-08009	ThISO	TH-227	1	TRG	L-2	pCi/l	0.00353	N	U	0.2463	0.08282	0.08282	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-05	09-08009	ThISO	TH-228	1	TRG	L-2	pCi/l	0.04367	N	U	0.2619	0.1135	0.1135	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-05	09-08009	ThISO	TH-230	1	TRG	L-2	pCi/l	0.1236	N	U	0.1438	0.1216004	0.1216	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-05	09-08009	ThISO	TH-232	1	TRG	L-2	pCi/l	-0.0045	N	U	0.1225	0.009044	0.00904	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-11	09-08009	ThISO	TH-227	1	TRG	L-4	pCi/l	-0.0119	N	U	0.2675	0.07315	0.07315	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-11	09-08009	ThISO	TH-228	1	TRG	L-4	pCi/l	0.03132	N	U	0.3001	0.1196	0.1196	0					OK		EML Th-01 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08009-11	09-08009	ThISO	TH-230	1	TRG	L-4	pCi/l	0.2782	Y		0.1742	0.2013011	0.2013	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-11	09-08009	ThISO	TH-232	1	TRG	L-4	pCi/l	0.144	N	U	0.1934	0.1475004	0.1475	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-227	1	TRG	SW/SD-06	pCi/l	0.06244	N	U	0.203	0.1037001	0.1037	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-228	1	TRG	SW/SD-06	pCi/l	0.01898	N	U	0.1534	0.05928	0.05928	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-230	1	TRG	SW/SD-06	pCi/l	0.1037	N	U	0.1536	0.1159003	0.1159	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-232	1	TRG	SW/SD-06	pCi/l	0.05656	N	U	0.07663	0.0807301	0.08073	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-227	1	TRG	SW/SD-07	pCi/l	0.05935	N	U	0.2941	0.1308001	0.1308	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-228	1	TRG	SW/SD-07	pCi/l	0.1724	N	U	0.2746	0.1822005	0.1822	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-230	1	TRG	SW/SD-07	pCi/l	0.05788	N	U	0.2873	0.1275001	0.1275	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-232	1	TRG	SW/SD-07	pCi/l	0.03525	N	U	0.09553	0.07088	0.07088	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-12	09-08009	ThISO	TH-227	1	TRG	SW/SD-08	pCi/l	0.06116	N	U	0.2285	0.1107001	0.1107	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-12	09-08009	ThISO	TH-228	1	TRG	SW/SD-08	pCi/l	0.04562	N	U	0.1815	0.0889301	0.08893	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-12	09-08009	ThISO	TH-230	1	TRG	SW/SD-08	pCi/l	0.1699	N	U	0.2451	0.1655005	0.1655	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-12	09-08009	ThISO	TH-232	1	TRG	SW/SD-08	pCi/l	-0.0205	N	U	0.1969	0.0208501	0.02085	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-08	09-08009	ThISO	TH-227	1	TRG	SW/SD-08-D	pCi/l	0.07889	N	U	0.1908	0.1124002	0.1124	0					OK		EML Th-01 Modified		0.1		n	Y		25.3		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	ThISO	TH-228	1	TRG	SW/SD-08-D	pCi/l	-0.0066	N	U	0.297	0.09681	0.09681	0					OK		EML Th-01 Modified		0.4		n	Y		267.7		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	ThISO	TH-230	1	TRG	SW/SD-08-D	pCi/l	0.144	N	U	0.1675	0.1419004	0.1419	0					OK		EML Th-01 Modified		0.1		n	n		16.5		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	ThISO	TH-232	1	TRG	SW/SD-08-D	pCi/l	0.1181	N	U	0.1427	0.1260003	0.126	0					OK		EML Th-01 Modified		1.1		n	Y		283.8		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-09	09-08009	ThISO	TH-227	1	TRG	SW/SD-09	pCi/l	-0.0142	N	U	0.1676	0.01661	0.01661	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-09	09-08009	ThISO	TH-228	1	TRG	SW/SD-09	pCi/l	-0.0281	N	U	0.2008	0.0235801	0.02358	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-09	09-08009	ThISO	TH-230	1	TRG	SW/SD-09	pCi/l	0.07218	N	U	0.1471	0.0958902	0.09589	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-09	09-08009	ThISO	TH-232	1	TRG	SW/SD-09	pCi/l	0.03575	N	U	0.1773	0.07909	0.07909	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-10	09-08009	ThISO	TH-227	1	TRG	SW/SD-11	pCi/l	-0.0657	N	U	0.2502	0.0349503	0.03495	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-10	09-08009	ThISO	TH-228	1	TRG	SW/SD-11	pCi/l	0.00357	N	U	0.1645	0.05119	0.05119	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-10	09-08009	ThISO	TH-230	1	TRG	SW/SD-11	pCi/l	0.325	Y		0.1832	0.1928015	0.1928	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-10	09-08009	ThISO	TH-232	1	TRG	SW/SD-11	pCi/l	0.06249	N	U	0.1274	0.0829601	0.08296	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-02	09-08009	UUISO	U-234	1	MBL	BLANK	pCi/l	0.03902	N		0.0638	0.0483203	0.04832	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	UUISO	U-235	1	MBL	BLANK	pCi/l	0	N		0.0461	0.0035231	0.00352	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	UUISO	U-238	1	MBL	BLANK	pCi/l	0.0114	N		0.06353	0.0279	0.0279	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08009-01	09-08009	UUISO	U-234	1	LCS	LCS	pCi/l	7.654	Y		0.05974	1.252415	1.252	0	8.294	92.282	OK		OK		EML U-02 Modified	0.299	0.5		Y	n	92.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	UUISO	U-235	1	LCS	LCS	pCi/l	0.5784	Y		0.1042	0.2106141	0.2106	0					OK		EML U-02 Modified				Y					LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	UUISO	U-238	1	LCS	LCS	pCi/l	8.531	Y		0.06969	1.3774687	1.377	0	8.085	105.52	OK		OK		EML U-02 Modified	0.291	0.3		Y	n	105.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	UUISO	U-234	1	DUP	BM-17-F	pCi/l	9.606	Y		0.1559	2.0384016	2.038	0				INV	OK		EML U-02 Modified		1.1		Y	n		35.5		DUP	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	UUISO	U-235	1	DUP	BM-17-F	pCi/l	0.5556	Y		0.3284	0.4101067	0.4101	0				OK	OK		EML U-02 Modified		0.1		Y	n		14.9		DUP	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	UUISO	U-238	1	DUP	BM-17-F	pCi/l	7.389	Y		0.1552	1.6862872	1.686	0				OK	OK		EML U-02 Modified		0.2		Y	n		6.2		DUP	Z-Score (normalized dif.) < 1.98
09-08009-04	09-08009	UUISO	U-234	1	DO	BM-17-F	pCi/l	6.71	Y		0.2549	1.5532571	1.553	0					OK		EML U-02 Modified				Y	n				DO	
09-08009-04	09-08009	UUISO	U-235	1	DO	BM-17-F	pCi/l	0.6448	Y		0.4097	0.4414084	0.4414	0					OK		EML U-02 Modified				Y	n				DO	
09-08009-04	09-08009	UUISO	U-238	1	DO	BM-17-F	pCi/l	6.946	Y		0.2973	1.5902691	1.59	0					OK		EML U-02 Modified				Y	n				DO	
09-08009-13	09-08009	UUISO	U-234	1	TRG	BM-16	pCi/l	14.25	Y		0.2753	2.637683	2.637	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-13	09-08009	UUISO	U-235	1	TRG	BM-16	pCi/l	0.9395	Y		0.1697	0.5030156	0.503	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-13	09-08009	UUISO	U-238	1	TRG	BM-16	pCi/l	11.31	Y		0.2741	2.2015155	2.201	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-14	09-08009	UUISO	U-234	1	TRG	BM-16-F	pCi/l	12.26	Y		0.2617	2.8154736	2.815	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-14	09-08009	UUISO	U-235	1	TRG	BM-16-F	pCi/l	1.31	Y		0.3228	0.8128187	0.8128	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-14	09-08009	UUISO	U-238	1	TRG	BM-16-F	pCi/l	11.92	Y		0.7121	2.764456	2.764	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-07	09-08009	UUISO	U-234	1	TRG	BM-18-F	pCi/l	10.53	Y		0.4435	2.1794513	2.179	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-07	09-08009	UUISO	U-235	1	TRG	BM-18-F	pCi/l	0.6087	Y		0.3811	0.4322076	0.4322	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-07	09-08009	UUISO	U-238	1	TRG	BM-18-F	pCi/l	9.455	Y		0.3076	2.0073951	2.007	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-18	09-08009	UUISO	U-234	1	TRG	BM-19	pCi/l	11.96	Y		0.2891	2.2745579	2.274	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-18	09-08009	UUISO	U-235	1	TRG	BM-19	pCi/l	0.6103	Y		0.3871	0.4037082	0.4037	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-18	09-08009	UUISO	U-238	1	TRG	BM-19	pCi/l	10.6	Y		0.3535	2.0714812	2.071	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-17	09-08009	UUISO	U-234	1	TRG	BM-7-F	pCi/l	0.653	Y		0.3036	0.4002095	0.4002	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-17	09-08009	UUISO	U-235	1	TRG	BM-7-F	pCi/l	-0.0118	N	U	0.3197	0.0235601	0.02356	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-17	09-08009	UUISO	U-238	1	TRG	BM-7-F	pCi/l	0.4177	Y		0.3363	0.3228048	0.3228	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-05	09-08009	UUISO	U-234	1	TRG	L-2	pCi/l	2.745	Y		0.8429	1.4250469	1.425	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-05	09-08009	UUISO	U-235	1	TRG	L-2	pCi/l	0.3509	N	U	0.8875	0.550602	0.5506	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-05	09-08009	UUISO	U-238	1	TRG	L-2	pCi/l	1.778	Y		0.9336	1.1310248	1.131	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-06	09-08009	UUISO	U-234	1	TRG	L-2-F	pCi/l	3.878	Y		0.9375	1.5290872	1.529	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-06	09-08009	UUISO	U-235	1	TRG	L-2-F	pCi/l	0.2603	N	U	0.6581	0.4077015	0.4077	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-06	09-08009	UUISO	U-238	1	TRG	L-2-F	pCi/l	4.457	Y		0.5311	1.6351078	1.635	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-11	09-08009	UUISO	U-234	1	TRG	L-4	pCi/l	-0.0518	N	U	0.4983	0.0524005	0.0524	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-11	09-08009	UUISO	U-235	1	TRG	L-4	pCi/l	-0.0319	N	U	0.5092	0.0454402	0.04544	0					OK		EML U-02 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08009-11	09-08009	UUISO	U-238	1	TRG	L-4	pCi/l	-0.0902	N	U	0.59	0.069641	0.06964	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-16	09-08009	UUISO	U-234	1	TRG	SW/SD-06	pCi/l	27.57	Y		1.13	5.5152227	5.514	0					INV		EML U-02 Modified				Y	n				TRG	
09-08009-16	09-08009	UUISO	U-235	1	TRG	SW/SD-06	pCi/l	1.864	Y		1.078	1.1770262	1.177	0					INV		EML U-02 Modified				Y	n				TRG	
09-08009-16	09-08009	UUISO	U-238	1	TRG	SW/SD-06	pCi/l	28.47	Y		0.9302	5.6402749	5.639	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-15	09-08009	UUISO	U-234	1	TRG	SW/SD-07	pCi/l	6.491	Y		0.5477	1.8731995	1.873	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-15	09-08009	UUISO	U-235	1	TRG	SW/SD-07	pCi/l	0.9891	Y		0.5184	0.6924125	0.6924	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-15	09-08009	UUISO	U-238	1	TRG	SW/SD-07	pCi/l	5.559	Y		0.5453	1.6911621	1.691	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-12	09-08009	UUISO	U-234	1	TRG	SW/SD-08	pCi/l	5.925	Y		0.6429	1.8341698	1.834	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-12	09-08009	UUISO	U-235	1	TRG	SW/SD-08	pCi/l	0.5647	N	U	0.657	0.5533051	0.5533	0					OK		EML U-02 Modified				n	n				TRG	
09-08009-12	09-08009	UUISO	U-238	1	TRG	SW/SD-08	pCi/l	5.525	Y		0.5899	1.7491548	1.749	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-08	09-08009	UUISO	U-234	1	TRG	SW/SD-08-D	pCi/l	4.87	Y		1.001	1.724122	1.724	0					INV		EML U-02 Modified		0.4		Y	n		19.5		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08009-08	09-08009	UUISO	U-235	1	TRG	SW/SD-08-D	pCi/l	0.2491	N	U	0.63	0.3903014	0.3903	0					OK		EML U-02 Modified		0.5		n	Y		77.6		TRG	Field Dup. Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	UUISO	U-238	1	TRG	SW/SD-08-D	pCi/l	5.677	Y		0.5958	1.8671531	1.867	0					OK		EML U-02 Modified		0.1		Y	n		2.7		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08009-09	09-08009	UUISO	U-234	1	TRG	SW/SD-09	pCi/l	7.296	Y		0.6858	2.0042356	2.004	0					OK		EML U-02 Modified									TRG	
09-08009-09	09-08009	UUISO	U-235	1	TRG	SW/SD-09	pCi/l	0.2891	N	U	0.5893	0.3830019	0.383	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-09	09-08009	UUISO	U-238	1	TRG	SW/SD-09	pCi/l	6.228	Y		0.2377	1.7911921	1.791	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-10	09-08009	UUISO	U-234	1	TRG	SW/SD-11	pCi/l	5.442	Y		0.6439	1.740151	1.74	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-10	09-08009	UUISO	U-235	1	TRG	SW/SD-11	pCi/l	0.4854	Y		0.3289	0.4924042	0.4924	0					OK		EML U-02 Modified				Y	Y				TRG	
09-08009-10	09-08009	UUISO	U-238	1	TRG	SW/SD-11	pCi/l	4.702	Y		0.2654	1.5751245	1.575	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-02	09-08010	KPA_LIQ	TOTAL U	1	MBL	BLANK	ug/l	0	N		1	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08010-01	09-08010	KPA_LIQ	TOTAL U	1	LCS	LCS	ug/l	7.93211	Y		1	0.5177001	0.10149	0.06	8	99.151	OK		OK		ASTM D5174 Modified	0.16	0.1		Y	n	99.2		N	LCS	Z-Score (normalized dif.) < 1.98
09-08010-0H	09-08010	KPA_LIQ	TOTAL U	1	LCSH	LCS-H	ug/l	205.856	Y		1	14.739099	6.6081	0.06	200	102.93	OK		OK				0.4		Y	n	102.9		Y	LCSH	
09-08010-03	09-08010	KPA_LIQ	TOTAL U	1	DUP	L-1	ug/l	0.97806	N		1	0.0671793	0.02439	0.06				OK	OK		ASTM D5174 Modified		0.4		n	n		3.7		DUP	Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	KPA_LIQ	TOTAL U	1	TRG	L-1-D	ug/l	0.90356	N	U	1	0.0616517	0.02138	0.06					OK		ASTM D5174 Modified		1.2		n	n		11.6		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-04	09-08010	KPA_LIQ	TOTAL U	1	DO	L-1	ug/l	1.01444	Y		1	0.0704526	0.02736	0.06					OK		ASTM D5174 Modified				Y	n				DO	
09-08010-12	09-08010	KPA_LIQ	TOTAL U	1	TRG	BM-19-F	ug/l	25.4029	Y		1	1.821615	0.82164	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-15	09-08010	KPA_LIQ	TOTAL U	1	TRG	BM-4-F	ug/l	26.7362	Y		1	1.9223263	0.87603	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-11	09-08010	KPA_LIQ	TOTAL U	1	TRG	BM-7-F-D	ug/l	1.10552	Y		1	0.072382	0.01527	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-14	09-08010	KPA_LIQ	TOTAL U	1	TRG	DW-1	ug/l	0.54548	N	U	1	0.0357615	0.00775	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-13	09-08010	KPA_LIQ	TOTAL U	1	TRG	DW-1-F	ug/l	0.3302	N	U	1	0.0217161	0.005	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-05	09-08010	KPA_LIQ	TOTAL U	1	TRG	L-1-F	ug/l	0.91493	N	U	1	0.0624187	0.02162	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-10	09-08010	KPA_LIQ	TOTAL U	1	TRG	RINSATE	ug/l	0.03155	N	U	1	0.0020768	0.00049	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-07	09-08010	KPA_LIQ	TOTAL U	1	TRG	SW/SD-02	ug/l	44.3183	Y		1	3.1767857	1.43072	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-08	09-08010	KPA_LIQ	TOTAL U	1	TRG	SW/SD-04	ug/l	1.12395	Y		1	0.0737586	0.01631	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-09	09-08010	KPA_LIQ	TOTAL U	1	TRG	SW/SD-05	ug/l	162.291	Y		1	11.615263	5.19929	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-01	09-08010	Ra226LC	RA-226	1	LCS	LCS	pCi/l	9.96515	Y		0.182527	1.1080891	0.48458	0.1	10.25	97.239	OK		OK		EPA 903.1	0.471	0.2		Y	n	97.2		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	Ra226LC	RA-226	1	MBL	BLANK	pCi/l	0.32762	Y		0.154309	0.1261636	0.12184	0.1					OK	INV	EPA 903.1		2.6		Y	n				MBL	Z-Score > 1.98, potential MB bias
09-08010-03	09-08010	Ra226LC	RA-226	1	DUP	L-1	pCi/l	0.61093	Y		0.31208	0.2353528	0.22729	0.1				INV	OK		EPA 903.1		0.7		Y	n		26.8		DUP	Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	Ra226LC	RA-226	1	TRG	L-1-D	pCi/l	0.51372	Y	J	0.378608	0.2642072	0.25916	0.1					OK		EPA 903.1		0.9		Y	n		15.4		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-04	09-08010	Ra226LC	RA-226	1	DO	L-1	pCi/l	0.87329	Y	J	0.334343	0.2798014	0.26582	0.1					OK		EPA 903.1		1.8	Y	Y	n				DO	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-06	09-08010	Ra226LC	RA-226	1	TRG	L-1-D	pCi/l	0.51372	Y	J	0.378608	0.2642072	0.25916	0.1					OK		EPA 903.1		0.6	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-12	09-08010	Ra226LC	RA-226	1	TRG	BM-19-F	pCi/l	0.4402	Y	J	0.329484	0.2274531	0.22315	0.1					OK		EPA 903.1		0.4	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-15	09-08010	Ra226LC	RA-226	1	TRG	BM-4-F	pCi/l	0.79977	Y	J	0.503084	0.3854223	0.37703	0.1					INV		EPA 903.1		1.2	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-11	09-08010	Ra226LC	RA-226	1	TRG	BM-7-F-D	pCi/l	0.43504	Y	J	0.323298	0.2287842	0.22461	0.1					OK		EPA 903.1		0.4	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-14	09-08010	Ra226LC	RA-226	1	TRG	DW-1	pCi/l	0.61692	Y	J	0.44169	0.3169895	0.31093	0.1					OK		EPA 903.1		0.8	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-13	09-08010	Ra226LC	RA-226	1	TRG	DW-1-F	pCi/l	1.86605	Y		0.519888	0.4700814	0.43146	0.1					INV		EPA 903.1		3.2	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08010-05	09-08010	Ra226LC	RA-226	1	TRG	L-1-F	pCi/l	0.98946	Y	J	0.438894	0.3426954	0.3281	0.1					OK		EPA 903.1		1.8	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-10	09-08010	Ra226LC	RA-226	1	TRG	RINSATE	pCi/l	0.47945	Y	J	0.300814	0.219288	0.21398	0.1					OK		EPA 903.1		0.6	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-07	09-08010	Ra226LC	RA-226	1	TRG	SW/SD-02	pCi/l	0.34222	N	U	0.398447	0.2544369	0.25212	0.1					OK		EPA 903.1		0.1	Y	n	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-08	09-08010	Ra226LC	RA-226	1	TRG	SW/SD-04	pCi/l	2.44665	Y		0.60292	0.5819936	0.52807	0.1					INV		EPA 903.1		3.6	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08010-09	09-08010	Ra226LC	RA-226	1	TRG	SW/SD-05	pCi/l	1.50822	Y		0.405552	0.3918286	0.36164	0.1					OK		EPA 903.1		2.9	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08010-01	09-08010	Ra228	RA-228	1	LCS	LCS	pCi/l	15.9112	Y		0.996207	1.4774703	1.39104	0.03	18.5	85.989	OK		OK		EPA 904.0 Modified	0.944	1.5		Y	n	86.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	Ra228	RA-228	1	MBL	BLANK	pCi/l	0.61626	N		0.968927	0.4859775	0.48559	0.03					OK	OK	EPA 904.0 Modified				n	n				MBL	MB<MDA
09-08010-03	09-08010	Ra228	RA-228	1	DUP	L-1-F	pCi/l	2.73082	Y		1.592163	0.8852466	0.88111	0.03				INV	OK		EPA 904.0 Modified		0.5		Y	n		27.1		DUP	Z-Score (normalized dif.) < 1.98
09-08010-05	09-08010	Ra228	RA-228	1	DO	L-1-F	pCi/l	2.0797	Y		1.543001	0.8279599	0.8254	0.03					OK		EPA 904.0 Modified				Y	n				DO	
09-08010-12	09-08010	Ra228	RA-228	1	TRG	BM-19-F	pCi/l	0.90465	N	U	1.139866	0.5798573	0.57917	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-15	09-08010	Ra228	RA-228	1	TRG	BM-4-F	pCi/l	-0.178	N	U	1.313144	0.6060867	0.60606	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-11	09-08010	Ra228	RA-228	1	TRG	BM-7-F-D	pCi/l	0.04247	N	U	1.062987	0.4987247	0.49872	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-14	09-08010	Ra228	RA-228	1	TRG	DW-1	pCi/l	0.96102	N	U	0.973437	0.5071713	0.50628	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-13	09-08010	Ra228	RA-228	1	TRG	DW-1-F	pCi/l	0.45189	N	U	1.109941	0.5425695	0.54239	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-04	09-08010	Ra228	RA-228	1	TRG	L-1	pCi/l	2.75376	Y		1.749337	0.9701763	0.96634	0.03					OK		EPA 904.0 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08010-06	09-08010	Ra228	RA-228	1	TRG	L-1-D	pCi/l	0.76311	N	U	1.591517	0.784274	0.78391	0.03					OK		EPA 904.0 Modified		1.6		n	Y		65.8		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-10	09-08010	Ra228	RA-228	1	TRG	RINSATE	pCi/l	0.96476	N	U	1.043422	0.5398996	0.53905	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-07	09-08010	Ra228	RA-228	1	TRG	SW/SD-02	pCi/l	0.414	N	U	1.158116	0.5631974	0.56305	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-08	09-08010	Ra228	RA-228	1	TRG	SW/SD-04	pCi/l	0.38511	N	U	1.057951	0.5148627	0.51472	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-09	09-08010	Ra228	RA-228	1	TRG	SW/SD-05	pCi/l	1.00804	N	U	1.351497	0.6848577	0.68413	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-01	09-08010	ThISO	TH-228	1	LCS	LCS	pCi/l	4.797	Y		0.1058	0.8946723	0.8946	0	4.879	98.31	OK		OK		EML Th-01 Modified	0.176	0.1		Y	n	98.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	ThISO	TH-230	1	LCS	LCS	pCi/l	5.342	Y		0.1143	0.9805819	0.9805	0	5.419	98.571	OK		OK		EML Th-01 Modified	0.146	0.1		Y	n	98.6		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	ThISO	TH-232	1	LCS	LCS	pCi/l	4.612	Y		0.06015	0.8648692	0.8648	0	4.879	94.519	OK		OK		EML Th-01 Modified	0.176	0.3		Y	n	94.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	ThISO	TH-227	1	MBL	BLANK	pCi/l	0.00212	N		0.1494	0.05015	0.05015	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	ThISO	TH-228	1	MBL	BLANK	pCi/l	-0.0085	N		0.136	0.03613	0.03613	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	ThISO	TH-230	1	MBL	BLANK	pCi/l	0.1355	N		0.1849	0.1174004	0.1174	0					OK	INV	EML Th-01 Modified				n	n				MBL	MB<MDA
09-08010-02	09-08010	ThISO	TH-232	1	MBL	BLANK	pCi/l	0.04543	N		0.0743	0.0566201	0.05662	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08010-03	09-08010	ThISO	TH-227	1	DUP	L-1-D	pCi/l	0.01795	N		0.3233	0.1151	0.1151	0				INV	OK		EML Th-01 Modified		0.3		n	Y		#####		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	ThISO	TH-228	1	DUP	L-1-D	pCi/l	0.08126	N		0.2608	0.1352001	0.1352	0				INV	OK		EML Th-01 Modified		0.3		n	Y		107.7		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	ThISO	TH-230	1	DUP	L-1-D	pCi/l	0.4096	Y		0.2764	0.2744017	0.2744	0				INV	OK		EML Th-01 Modified		0.8		Y	n		89.6		DUP	Z-Score (normalized dif.) < 1.98
09-08010-03	09-08010	ThISO	TH-232	1	DUP	L-1-D	pCi/l	-0.0317	N		0.2606	0.0291101	0.02911	0				INV	OK		EML Th-01 Modified		1.0		n	Y		370.0		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-06	09-08010	ThISO	TH-227	1	DO	L-1-D	pCi/l	-0.0205	N	U	0.3259	0.08667	0.08667	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-06	09-08010	ThISO	TH-228	1	DO	L-1-D	pCi/l	0.02436	N	U	0.3055	0.114	0.114	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-06	09-08010	ThISO	TH-230	1	DO	L-1-D	pCi/l	0.1561	N	U	0.2632	0.1738004	0.1738	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-06	09-08010	ThISO	TH-232	1	DO	L-1-D	pCi/l	0.1062	N	U	0.1737	0.1326002	0.1326	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-12	09-08010	ThISO	TH-227	1	TRG	BM-19-F	pCi/l	0.05756	N	U	0.1877	0.1002001	0.1002	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-12	09-08010	ThISO	TH-228	1	TRG	BM-19-F	pCi/l	-0.0058	N	U	0.1563	0.01172	0.01172	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-12	09-08010	ThISO	TH-230	1	TRG	BM-19-F	pCi/l	0.2648	Y		0.1565	0.199101	0.1991	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-12	09-08010	ThISO	TH-232	1	TRG	BM-19-F	pCi/l	0	N	U	0.09149	0.0086082	0.00861	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-15	09-08010	ThISO	TH-227	1	TRG	BM-4-F	pCi/l	0.1953	Y		0.1057	0.1796006	0.1796	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-15	09-08010	ThISO	TH-228	1	TRG	BM-4-F	pCi/l	0.01893	N	U	0.2295	0.08066	0.08066	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-15	09-08010	ThISO	TH-230	1	TRG	BM-4-F	pCi/l	0.2472	Y		0.2297	0.2096008	0.2096	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-15	09-08010	ThISO	TH-232	1	TRG	BM-4-F	pCi/l	-0.0065	N	U	0.176	0.013	0.013	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-227	1	TRG	BM-7-F-D	pCi/l	-0.0059	N	U	0.1601	0.01184	0.01184	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-228	1	TRG	BM-7-F-D	pCi/l	0.01097	N	U	0.2209	0.07243	0.07243	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-230	1	TRG	BM-7-F-D	pCi/l	0.1517	N	U	0.2038	0.1555004	0.1555	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-232	1	TRG	BM-7-F-D	pCi/l	0.01079	N	U	0.2207	0.07128	0.07128	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-14	09-08010	ThISO	TH-227	1	TRG	DW-1	pCi/l	0.02678	N	U	0.1491	0.06569	0.06569	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-14	09-08010	ThISO	TH-228	1	TRG	DW-1	pCi/l	0.02107	N	U	0.1705	0.06581	0.06581	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-14	09-08010	ThISO	TH-230	1	TRG	DW-1	pCi/l	0.2518	Y		0.08531	0.185101	0.1851	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-14	09-08010	ThISO	TH-232	1	TRG	DW-1	pCi/l	0.0575	N	U	0.1454	0.0902601	0.09026	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-13	09-08010	ThISO	TH-227	1	TRG	DW-1-F	pCi/l	0.00612	N	U	0.2852	0.08735	0.08735	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-13	09-08010	ThISO	TH-228	1	TRG	DW-1-F	pCi/l	-0.0549	N	U	0.3234	0.0406402	0.04064	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-13	09-08010	ThISO	TH-230	1	TRG	DW-1-F	pCi/l	0.2915	Y		0.2606	0.235601	0.2356	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-13	09-08010	ThISO	TH-232	1	TRG	DW-1-F	pCi/l	-0.027	N	U	0.2601	0.0276601	0.02766	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-04	09-08010	ThISO	TH-227	1	TRG	L-1	pCi/l	0.01605	N	U	0.2889	0.1028	0.1028	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-04	09-08010	ThISO	TH-228	1	TRG	L-1	pCi/l	0.03885	N	U	0.2331	0.09929	0.09929	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-04	09-08010	ThISO	TH-230	1	TRG	L-1	pCi/l	0.1717	N	U	0.2334	0.1690005	0.169	0					OK		EML Th-01 Modified				n	n				TRG	
09-08010-04	09-08010	ThISO	TH-232	1	TRG	L-1	pCi/l	0.1105	N	U	0.2179	0.1369003	0.1369	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-05	09-08010	ThISO	TH-227	1	TRG	L-1-F	pCi/l	0.03895	N	U	0.3122	0.1258	0.1258	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-05	09-08010	ThISO	TH-228	1	TRG	L-1-F	pCi/l	0.02112	N	U	0.3319	0.1258	0.1258	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-05	09-08010	ThISO	TH-230	1	TRG	L-1-F	pCi/l	0.2912	Y		0.1823	0.2109011	0.2109	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-05	09-08010	ThISO	TH-232	1	TRG	L-1-F	pCi/l	0.1621	Y		0.1553	0.1541005	0.1541	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-10	09-08010	ThISO	TH-227	1	TRG	RINSATE	pCi/l	-0.0975	N		0.3713	0.0527505	0.05275	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-10	09-08010	ThISO	TH-228	1	TRG	RINSATE	pCi/l	0.1115	N		0.2442	0.1460002	0.146	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-10	09-08010	ThISO	TH-230	1	TRG	RINSATE	pCi/l	0.2729	Y		0.272	0.219401	0.2194	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-10	09-08010	ThISO	TH-232	1	TRG	RINSATE	pCi/l	0.02301	N		0.1891	0.0719	0.0719	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-07	09-08010	ThISO	TH-227	1	TRG	SW/SD-02	pCi/l	0.06114	N	U	0.2285	0.1107001	0.1107	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-07	09-08010	ThISO	TH-228	1	TRG	SW/SD-02	pCi/l	0.01433	N	U	0.2546	0.09183	0.09183	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-07	09-08010	ThISO	TH-230	1	TRG	SW/SD-02	pCi/l	0.3109	Y		0.1972	0.2100013	0.21	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-07	09-08010	ThISO	TH-232	1	TRG	SW/SD-02	pCi/l	-0.0256	N	U	0.2104	0.0234201	0.02342	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-08	09-08010	ThISO	TH-227	1	TRG	SW/SD-04	pCi/l	0.09273	N	U	0.16	0.1088002	0.1088	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-08	09-08010	ThISO	TH-228	1	TRG	SW/SD-04	pCi/l	0.04701	N	U	0.2491	0.1102001	0.1102	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-08	09-08010	ThISO	TH-230	1	TRG	SW/SD-04	pCi/l	0.1726	Y		0.1405	0.1415006	0.1415	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-08	09-08010	ThISO	TH-232	1	TRG	SW/SD-04	pCi/l	0.02148	N	U	0.1197	0.05265	0.05265	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-09	09-08010	ThISO	TH-227	1	TRG	SW/SD-05	pCi/l	0.05366	N	U	0.2169	0.1046001	0.1046	0					OK		EML Th-01 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08010-09	09-08010	ThISO	TH-228	1	TRG	SW/SD-05	pCi/l	-0.0363	N	U	0.2599	0.0306001	0.0306	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-09	09-08010	ThISO	TH-230	1	TRG	SW/SD-05	pCi/l	0.1637	N	U	0.1905	0.1616005	0.1616	0					OK		EML Th-01 Modified				n	n				TRG	
09-08010-09	09-08010	ThISO	TH-232	1	TRG	SW/SD-05	pCi/l	-0.0239	N	U	0.2295	0.0243701	0.02437	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-01	09-08010	UUISO	U-234	1	LCS	LCS	pCi/l	8.584	Y		0.0423	1.4644464	1.464	0	8.331	103.04	OK		OK		EML U-02 Modified	0.3	0.2		Y	n	103.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	UUISO	U-234	2	LCS	LCS	pCi/l	7.455	Y		0.07738	1.1724206	1.172	0	8.335	89.438	OK		OK		EML U-02 Modified	0.3	0.7		Y	n	89.4		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	UUISO	U-235	1	LCS	LCS	pCi/l	0.7284	Y		0.0891	0.2607181	0.2607	0					OK		EML U-02 Modified				Y	n				LCS	
09-08010-01	09-08010	UUISO	U-235	2	LCS	LCS	pCi/l	0.5091	Y		0.08928	0.1823126	0.1823	0					OK		EML U-02 Modified				Y	n				LCS	
09-08010-01	09-08010	UUISO	U-238	1	LCS	LCS	pCi/l	9.558	Y		0.04212	1.6095036	1.609	0	8.12	117.71	OK		OK		EML U-02 Modified	0.292	0.9		Y	n	117.7		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	UUISO	U-238	2	LCS	LCS	pCi/l	7.658	Y		0.06641	1.1994338	1.199	0	8.125	94.254	OK		OK		EML U-02 Modified	0.292	0.4		Y	n	94.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	UUISO	U-234	1	MBL	BLANK	pCi/l	0.04489	N		0.08849	0.0552403	0.05524	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-234	2	MBL	BLANK	pCi/l	0.02359	N		0.07705	0.0409101	0.04091	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-235	1	MBL	BLANK	pCi/l	-0.0085	N		0.1006	0.0098981	0.0099	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-235	2	MBL	BLANK	pCi/l	0.03768	N		0.1227	0.0624202	0.06242	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-238	1	MBL	BLANK	pCi/l	0.00202	N		0.0942	0.02881	0.02881	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-238	2	MBL	BLANK	pCi/l	-0.0027	N		0.1101	0.03103	0.03103	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-03	09-08010	UUISO	U-234	1	DUP	L-1	pCi/l	0.584	N		0.7913	0.8385036	0.8385	0				INV	OK		EML U-02 Modified		0.4		n	Y		73.7		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-234	2	DUP	L-1	pCi/l	0.6661	Y		0.2605	0.4022098	0.4022	0				OK	OK		EML U-02 Modified		0.2		Y	n		15.5		DUP	Z-Score (normalized dif.) < 1.98
09-08010-03	09-08010	UUISO	U-235	1	DUP	L-1	pCi/l	0	N		0.9762	0.0744225	0.07442	0				OK	OK		EML U-02 Modified		0.4		n	Y		-200.0		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-235	2	DUP	L-1	pCi/l	0.05765	N		0.3214	0.1412002	0.1412	0				INV	OK		EML U-02 Modified		0.3		n	Y		77.1		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-238	1	DUP	L-1	pCi/l	1.114	N		1.345	1.1990092	1.199	0				INV	INV		EML U-02 Modified		0.5		n	Y		98.4		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-238	2	DUP	L-1	pCi/l	0.7933	Y		0.3923	0.4511124	0.4511	0				INV	OK		EML U-02 Modified		0.4		Y	n		33.1		DUP	Z-Score (normalized dif.) < 1.98
09-08010-04	09-08010	UUISO	U-234	1	DO	L-1	pCi/l	1.265	N	U	2.493	1.584009	1.584	0					INV		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-234	2	DO	L-1	pCi/l	0.5705	Y		0.2437	0.359208	0.3592	0					OK		EML U-02 Modified				Y	n				DO	
09-08010-04	09-08010	UUISO	U-235	1	DO	L-1	pCi/l	-0.0799	N	U	2.174	0.1613004	0.1613	0					INV		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-235	2	DO	L-1	pCi/l	0.13	N	U	0.1761	0.1847008	0.1847	0					OK		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-238	1	DO	L-1	pCi/l	0.3793	N	U	1.028	0.7658017	0.7658	0					INV		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-238	2	DO	L-1	pCi/l	0.568	Y		0.2427	0.357608	0.3576	0					OK		EML U-02 Modified				Y	n				DO	
09-08010-06	09-08010	UUISO	U-234	1	TRG	L-1-D	pCi/l	0.7138	N	U	0.9672	1.0280044	1.028	0					OK		EML U-02 Modified		0.3		n	Y		55.7		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08010-06	09-08010	UUISO	U-234	2	TRG	L-1-D	pCi/l	0.6721	Y		0.2667	0.3811105	0.3811	0					OK		EML U-02 Modified		0.2		Y	n		16.4		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	UUISO	U-235	1	TRG	L-1-D	pCi/l	0.4403	N	U	1.193	0.8885019	0.8885	0					INV		EML U-02 Modified		0.6		n	Y		288.7		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08010-06	09-08010	UUISO	U-235	2	TRG	L-1-D	pCi/l	0.2428	Y		0.1645	0.2452021	0.2452	0					OK		EML U-02 Modified		0.4		Y	Y		60.5		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	UUISO	U-238	1	TRG	L-1-D	pCi/l	1.006	N	U	1.644	1.2660071	1.266	0					INV		EML U-02 Modified		0.4		n	Y		90.5		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08010-06	09-08010	UUISO	U-238	2	TRG	L-1-D	pCi/l	0.6858	Y		0.1328	0.379311	0.3793	0					OK		EML U-02 Modified		0.2		Y	n		18.8		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-12	09-08010	UUISO	U-234	1	TRG	BM-19-F	pCi/l	14.48	Y		0.2599	2.7636731	2.763	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-12	09-08010	UUISO	U-235	1	TRG	BM-19-F	pCi/l	0.5543	Y		0.1878	0.4001068	0.4001	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-12	09-08010	UUISO	U-238	1	TRG	BM-19-F	pCi/l	10.78	Y		0.2588	2.2014683	2.201	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-15	09-08010	UUISO	U-234	1	TRG	BM-4-F	pCi/l	12.99	Y		0.4585	2.8755206	2.875	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-15	09-08010	UUISO	U-235	1	TRG	BM-4-F	pCi/l	0.5038	Y		0.4827	0.4740047	0.474	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-15	09-08010	UUISO	U-238	1	TRG	BM-4-F	pCi/l	11.83	Y		0.5078	2.6834627	2.683	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-11	09-08010	UUISO	U-234	1	TRG	BM-7-F-D	pCi/l	0.6041	Y		0.2844	0.3993081	0.3993	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-11	09-08010	UUISO	U-235	1	TRG	BM-7-F-D	pCi/l	0.1001	N	U	0.4961	0.2210004	0.221	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-11	09-08010	UUISO	U-238	1	TRG	BM-7-F-D	pCi/l	0.2851	N	U	0.3317	0.2784026	0.2784	0					OK		EML U-02 Modified				n	n				TRG	
09-08010-14	09-08010	UUISO	U-234	1	TRG	DW-1	pCi/l	0.6446	Y		0.2754	0.4065091	0.4065	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-14	09-08010	UUISO	U-235	1	TRG	DW-1	pCi/l	-0.0375	N	U	0.4428	0.0435903	0.04359	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-14	09-08010	UUISO	U-238	1	TRG	DW-1	pCi/l	0.3354	Y		0.3213	0.2958034	0.2958	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-13	09-08010	UUISO	U-234	1	TRG	DW-1-F	pCi/l	0.4348	Y		0.1683	0.334905	0.3349	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-13	09-08010	UUISO	U-235	1	TRG	DW-1-F	pCi/l	0.1402	N	U	0.3545	0.2193008	0.2193	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-13	09-08010	UUISO	U-238	1	TRG	DW-1-F	pCi/l	0.06184	N	U	0.1676	0.1240003	0.124	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-234	1	TRG	L-1-F	pCi/l	1.939	Y		1.578	1.6200206	1.62	0					INV		EML U-02 Modified				Y	n				TRG	
09-08010-05	09-08010	UUISO	U-234	2	TRG	L-1-F	pCi/l	0.3976	Y		0.3201	0.3071046	0.3071	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-05	09-08010	UUISO	U-235	1	TRG	L-1-F	pCi/l	-0.061	N	U	1.662	0.1230003	0.123	0					INV		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-235	2	TRG	L-1-F	pCi/l	0.08643	N	U	0.4285	0.1909003	0.1909	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-238	1	TRG	L-1-F	pCi/l	0.4811	N	U	1.571	0.8401024	0.8401	0					INV		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-238	2	TRG	L-1-F	pCi/l	0.4577	Y		0.2865	0.3247057	0.3247	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-10	09-08010	UUISO	U-234	1	TRG	RINSATE	pCi/l	0.1337	N	U	0.3773	0.2044008	0.2044	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-10	09-08010	UUISO	U-235	1	TRG	RINSATE	pCi/l	-0.0121	N	U	0.3291	0.0242401	0.02424	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-10	09-08010	UUISO	U-238	1	TRG	RINSATE	pCi/l	0.4397	Y		0.3112	0.3321052	0.3321	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-07	09-08010	UUISO	U-234	1	TRG	SW/SD-02	pCi/l	19.87	Y		0.6664	4.5677668	4.567	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-07	09-08010	UUISO	U-235	1	TRG	SW/SD-02	pCi/l	1.491	Y		0.7017	0.9923199	0.9923	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-07	09-08010	UUISO	U-238	1	TRG	SW/SD-02	pCi/l	19.58	Y		0.3317	4.5097541	4.509	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-08	09-08010	UUISO	U-234	1	TRG	SW/SD-04	pCi/l	0.6099	Y		0.2606	0.3846086	0.3846	0					OK		EML U-02 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08010-08	09-08010	UUISO	U-235	1	TRG	**SW/SD-04**	pCi/l	**0.1966**	**N**	**U**	0.3215	0.2435014	0.2435	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-08	09-08010	UUISO	U-238	1	TRG	**SW/SD-04**	pCi/l	**0.6168**	**Y**		0.152	0.3828088	0.3828	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-09	09-08010	UUISO	U-234	1	TRG	**SW/SD-05**	pCi/l	**61.36**	**Y**		0.7321	11.043025	11.04	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-09	09-08010	UUISO	U-235	1	TRG	**SW/SD-05**	pCi/l	**6.441**	**Y**		0.5289	2.4381509	2.438	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-09	09-08010	UUISO	U-238	1	TRG	**SW/SD-05**	pCi/l	**61.91**	**Y**		0.4269	11.123057	11.12	0					OK		EML U-02 Modified				Y	n				TRG	

Appendix A-3
Data Qualification Report for
2010 Phase 2 Remedial Investigation Sampling

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Town of Tonawanda Landfill (FUSRAP)

Remedial Investigation Addendum (2009-2010)
Laboratory Radiological Data Qualification –March 2011
Data Reviewer: [redacted] – Chemist - (LRB-TD-EH)

Laboratory Radiological Data Qualification Summary

Nine hundred sixty one (961) soil samples, twelve (12) samples consisting of filtered solids from groundwater, and twelve (12) filtered (dissolved) groundwater samples collected by American Remediation Solutions and Environmental Corporation (ARSEC), in support of US Army Corps of Engineer (USACE) remediation investigation addendum effort at the Town of Tonawanda Landfill FUSRAP Project. Samples were submitted to DOD ELAP accredited American Radiation Services (ARS) laboratory and analyzed for:

Soil Sample Analysis:
Isotopic Thorium [Th-228, 230 and 232] - HASL 300 - Alpha Spectroscopy – Eichrom Modification
Radium [Ra-226] - EPA 901.1 -Gamma Spectroscopy
Radium [Ra -228] - EPA 901.1 Gamma Spectroscopy
Americium-241 (Am-241) - EPA 901.1 -Gamma Spectroscopy
Uranium [U-234, 235 & 238 (Note 1)]- EPA 901.1 - Gamma Spectroscopy
Note : U-238 determined via gamma spectroscopy assuming secular equilibrium with Th-234.
U-234 determined via gamma spectroscopy assuming secular equilibrium with U-238.

Water Sample Analysis:
Radium [Ra-226]- EPA 903.1 – Radon Emanation (scintillation cells for alpha activity)
Ra-228[Ra-228] - EPA 904 – Gas Flow Proportional Counter
Isotopic U (234, 235, 238) HASL 300 - Alpha Spectroscopy – Eichrom Modification
Isotopic Th (228, 230, 232) HASL 300 - Alpha Spectroscopy – Eichrom Modification

A data qualification was performed to assess the quality of the soil and water sampling results. These assessments was to demonstrate whether environmental data generated are appropriate for their intended purpose, are technically defensible, and are of known and acceptable precision and accuracy.

Analytical data generated by the offsite lab has undergone a process of data verification and review. The analytical data was qualified by utilizing the guidance presented in MARLAP (NUREG-1576) guidance where practicable and in USACE Kansas City and St. Louis District Radionuclide Data Quality Evaluation Guidance for Alpha and Gamma Spectroscopy (USACE, 2002).

The overall quality of the sampling information meets or exceeds the established project objectives. Data as presented, has been qualified as usable (99.61%). Multiple soil samples (0.39%) analyzed for isotopic Th-228 and Th-230 in the respective batches ARS1-B10-01554 (16-samples) and ARS1-B10-02169 (18-samples) were rejected "R" due to method blank contamination (batch method blank greater than primary finding).

Data produced for this project demonstrates that it can withstand scientific scrutiny, is appropriate for its intended purpose and is of known and acceptable precision, and accuracy. Data integrity has been documented through proper implementation of Quality Assurance and Quality Control measures.

Data qualification worksheets supplement this summary with QA/QC worksheets listed first followed by the associated qualified sample data worksheets.

Final qualifiers are as follows:

J -Estimated values are qualified.
R -Rejected values qualified.
U -Non-detect parameters are qualified

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > ACT	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-00943-01	ASP-A-009	5.632843	TH-230	0.1838018	0.01678447	0.705163475	pCi	0.00628	g	ARS-031	LCS	ARS1-B10-00943	0.97492		75	95.8	5.876965	125		0.35					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00943-01	ASP-A-009	5.632843	TH-230	0.1838018	0.01678447	0.705163475	pCi	0.00628	g	ARS-031	LCS	ARS1-B10-00943	0.97492		75	95.8	5.876965	125		0.35					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00943-02	ASP-A-009	5.680429	TH-230	0.2035084	0.022743531	0.716067028	pCi	0.008807	g	ARS-031	LCSD	ARS1-B10-00943	0.7215961		75	95.8	5.883265	125	0.8842	0.28	0.05				97	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00943-02	ASP-A-009	5.680429	TH-230	0.2035084	0.022743531	0.716067028	pCi	0.008807	g	ARS-031	LCSD	ARS1-B10-00943	0.7215961		75	95.8	5.883265	125	0.8842	0.28	0.00				97	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00943-03	ASP-A-009	0.00177	TH-228	0.0034697	0.004797357	0.003476265	pCi	0	g	ARS-031	MBL	ARS1-B10-00943	0.7932692	U										n			MBL	MB<MDA
ARS1-B10-00943-03	ASP-A-009	0.00177	TH-228	0.0034697	0.004797357	0.003476265	pCi	0	g	ARS-031	MBL	ARS1-B10-00943	0.7932692	U										n			MBL	MB<MDA
ARS1-B10-00943-03	ASP-A-009	0.022855	TH-230	0.0133456	0.012944258	0.013628466	pCi	0.00409	g	ARS-031	MBL	ARS1-B10-00943	0.7932692							1.677		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-00943-03	ASP-A-009	0.022855	TH-230	0.0133456	0.012944258	0.013628466	pCi	0.00409	g	ARS-031	MBL	ARS1-B10-00943	0.7932692							1.677		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-00943-03	ASP-A-009	-0.00351	TH-232	0.0048634	0.016299812	0.004881835	pCi	0.005772	g	ARS-031	MBL	ARS1-B10-00943	0.7932692	U										n			MBL	MB<MDA
ARS1-B10-00943-03	ASP-A-009	-0.00351	TH-232	0.0048634	0.016299812	0.004881835	pCi	0.005772	g	ARS-031	MBL	ARS1-B10-00943	0.7932692	U										n			MBL	MB<MDA
ARS1-B10-00944-01	ASP-A-009	5.938643	TH-230	0.1890205	0.014533717	0.742219546	pCi	0.005147	g	ARS-031	LCS	ARS1-B10-00944	0.9438479		75	101.6	5.848903	125		0.12					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00944-01	ASP-A-009	5.938643	TH-230	0.1890205	0.014533717	0.742219546	pCi	0.005147	g	ARS-031	LCS	ARS1-B10-00944	0.9438479		75	101.6	5.848903	125		0.12					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00944-02	ASP-A-009	5.352976	TH-230	0.1762646	0.016242672	0.670545114	pCi	0.006078	g	ARS-031	LCSD	ARS1-B10-00944	0.9444201		75	101.6	5.866657	125	10.452	0.77	0.59				91	10.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00944-02	ASP-A-009	5.352976	TH-230	0.1762646	0.016242672	0.670545114	pCi	0.006078	g	ARS-031	LCSD	ARS1-B10-00944	0.9444201		75	101.6	5.866657	125	10.452	0.77	0.00				91	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00944-03	ASP-A-009	0	TH-228	0.0101912	0.021562524	0.010191169	pCi	0.008553	g	ARS-031	MBL	ARS1-B10-00944	0.8760315	U										n			MBL	MB<MDA
ARS1-B10-00944-03	ASP-A-009	0	TH-228	0.0101912	0.021562524	0.010191169	pCi	0.008553	g	ARS-031	MBL	ARS1-B10-00944	0.8760315	U										n			MBL	MB<MDA
ARS1-B10-00944-03	ASP-A-009	0.027734	TH-230	0.0172193	0.023013947	0.017542481	pCi	0.009296	g	ARS-031	MBL	ARS1-B10-00944	0.8760315							1.5809		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-00944-03	ASP-A-009	0.027734	TH-230	0.0172193	0.023013947	0.017542481	pCi	0.009296	g	ARS-031	MBL	ARS1-B10-00944	0.8760315							1.5809		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-00944-03	ASP-A-009	0.009769	TH-232	0.0090259	0.011987565	0.009102808	pCi	0.003788	g	ARS-031	MBL	ARS1-B10-00944	0.8760315	U										n			MBL	MB<MDA
ARS1-B10-00944-03	ASP-A-009	0.009769	TH-232	0.0090259	0.011987565	0.009102808	pCi	0.003788	g	ARS-031	MBL	ARS1-B10-00944	0.8760315	U										n			MBL	MB<MDA
ARS1-B10-01369-01	ASP-A-009	6.26269	TH-230	0.2076907	0.01927459	0.784889066	pCi	0.007212	g	ARS-031	LCS	ARS1-B10-01369	0.7837484		75	107.9	5.80294	125		0.59					108		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01369-02	ASP-A-009	6.02688	TH-230	0.2171214	0.014981257	0.760082348	pCi	0.004734	g	ARS-031	LCSD	ARS1-B10-01369	0.7262892		75	107.9	5.809163	125	3.7429	0.29	0.22				104	3.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01369-03	ASP-A-009	0.011353	TH-228	0.0090845	0.005127886	0.009187538	pCi	0	g	ARS-031	MBL	ARS1-B10-01369	0.7421449							1.2357		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01369-03	ASP-A-009	0.028148	TH-230	0.0168548	0.020208166	0.017194737	pCi	0.007561	g	ARS-031	MBL	ARS1-B10-01369	0.7421449							1.637		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01369-03	ASP-A-009	0.001873	TH-232	0.0063578	0.013788912	0.006361814	pCi	0.004357	g	ARS-031	MBL	ARS1-B10-01369	0.7421449	U										n			MBL	MB<MDA
ARS1-B10-01371-01	ASP-A-009	5.776747	TH-230	0.1993449	0.023410273	0.726081474	pCi	0.009286	g	ARS-031	LCS	ARS1-B10-01371	0.8158858		75	100	5.779181	125		0.00					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01371-02	ASP-A-009	5.730147	TH-230	0.1963416	0.024614669	0.719842455	pCi	0.009943	g	ARS-031	LCSD	ARS1-B10-01371	0.7963811		75	100	5.780878	125	0.8688	0.07	0.05				99	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01371-03	ASP-A-009	-0.00222	TH-228	0.0043508	0.016344008	0.004359111	pCi	0.005164	g	ARS-031	MBL	ARS1-B10-01371	0.642764	U										n			MBL	MB<MDA
ARS1-B10-01371-03	ASP-A-009	0.026417	TH-230	0.0149471	0.005965935	0.015284269	pCi	0	g	ARS-031	MBL	ARS1-B10-01371	0.642764							1.7284		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01371-03	ASP-A-009	0.002197	TH-232	0.009629	0.020410585	0.009632652	pCi	0.007228	g	ARS-031	MBL	ARS1-B10-01371	0.642764	U										n			MBL	MB<MDA
ARS1-B10-01398-01	ASP-A-009	5.558295	TH-230	0.2471471	0.037322521	0.715798589	pCi	0.014805	g	ARS-031	LCS	ARS1-B10-01398	0.5279163		75	96.27	5.77522	125		0.30					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01398-02	ASP-A-009	5.391798	TH-230	0.2319392	0.027888239	0.691701197	pCi	0.010435	g	ARS-031	LCSD	ARS1-B10-01398	0.551825		75	96.27	5.782009	125	3.105	0.56	0.17				93	3.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01398-03	ASP-A-009	-0.00231	TH-228	0.0078348	0.021440135	0.007839774	pCi	0.007593	g	ARS-031	MBL	ARS1-B10-01398	0.6299634	U										n			MBL	MB<MDA
ARS1-B10-01398-03	ASP-A-009	0.031986	TH-230	0.0189989	0.021225185	0.019388208	pCi	0.007517	g	ARS-031	MBL	ARS1-B10-01398	0.6299634							1.6498		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01398-03	ASP-A-009	-0.00456	TH-232	0.0089382	0.024554688	0.008955224	pCi	0.009188	g	ARS-031	MBL	ARS1-B10-01398	0.6299634	U										n			MBL	MB<MDA
ARS1-B10-01399-01	ASP-A-009	5.802145	TH-230	0.2015696	0.021847639	0.729645048	pCi	0.00846	g	ARS-031	LCS	ARS1-B10-01399	0.7511862		75	100.3	5.782009	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01399-02	ASP-A-009	5.778395	TH-230	0.2184889	0.01582185	0.731759228	pCi	0.004999	g	ARS-031	LCSD	ARS1-B10-01399	0.6489938		75	100.3	5.77918	125	0.3454	0.00	0.02				100	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01399-03	ASP-A-009	-0.00905	TH-228	0.0093826	0.025523963	0.009446062	pCi	0.01031	g	ARS-031	MBL	ARS1-B10-01399	0.8162746	U										n			MBL	MB<MDA
ARS1-B10-01399-03	ASP-A-009	0.032241	TH-230	0.0157005	0.013188104	0.016176807	pCi	0.004167	g	ARS-031	MBL	ARS1-B10-01399	0.8162746							1.9931		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01399-03	ASP-A-009	-0.00179	TH-232	0.0035037	0.013161725	0.003510364	pCi	0.004159	g	ARS-031	MBL	ARS1-B10-01399	0.8162746	U										n			MBL	MB<MDA
ARS1-B10-01553-01	ASP-A-009	5.751592	TH-230	0.1879148	0.004331027	0.720091576	pCi	0	g	ARS-031	LCS	ARS1-B10-01553	0.7831866		75	98.57	5.833486	125		0.11					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01553-02	ASP-A-009	5.683327	TH-230	0.1999235	0.013470209	0.715392785	pCi	0.004256	g	ARS-031	LCSD	ARS1-B10-01553	0.7032139		75	98.57	5.804636	125	1.2248	0.17	0.07				98	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01553-03	ASP-A-009	0.00662	TH-228	0.0171465	0.030942706	0.017165169	pCi	0.013411	g	ARS-031	MBL	ARS1-B10-01553	0.7982517	U										n			MBL	MB<MDA
ARS1-B10-01553-03	ASP-A-009	0.02306	TH-230	0.0136132	0.016192689	0.013895614	pCi	0.006059	g	ARS-031	MBL	ARS1-B10-01553	0.7982517							1.6595		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01553-03	ASP-A-009	-0.00293	TH-232	0.0058469	0.016062311	0.005857565	pCi	0.005998	g	ARS-031	MBL	ARS1-B10-01553	0.7982517	U										n			MBL	MB<MDA
ARS1-B10-01554-01	ASP-A-009	5.670959	TH-230	0.3245542	0.031935477	0.758354557	pCi	0.009424	g	ARS-031	LCS	ARS1-B10-01554	0.7775392		75	98.37	5.763905	125		0.12					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01554-02	ASP-A-009	5.914735	TH-230	0.3258628	0.015557757	0.785625954	pCi	0.001447	g	ARS-031	LCSD	ARS1-B10-01554	0.8175365		75	98.37	5.792755	125	4.1451	0.16	0.22				102	4.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01554-03	ASP-A-009	1.958148	TH-228	0.2159761	0.072518727	0.320398086	pCi	0.028058	g	ARS-031	MBL	ARS1-B10-01554	0.6222249							6.1116		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-01554-03	ASP-A-009	0.028125	TH-230	0.027686	0.034688258	0.027893917	pCi	0.009257	g	ARS-031	MBL	ARS1-B10-01554	0.6222249	U										n			MBL	MB<MDA
ARS1-B10-01554-03	ASP-A-009	0.009928	TH-232	0.0169633	0.029207243	0.017005698	pCi	0.006532	g	ARS-031	MBL	ARS1-B10-01554	0.6222249	U										n			MBL	MB<MDA
ARS1-B10-01573-01	ASP-A-009	6.67802	TH-230	0.5347688	0.064690893	0.968195342	pCi	0.017263	g	ARS-031	LCS	ARS1-B10-01573	0.3336466		75	115	5.809726	125		0.90					115		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01573-02	ASP-A-009	5.981945	TH-230	0.3717089	0.045790691	0.812938324	pCi	0.014767	g	ARS-031	LCSD	ARS1-B10-01573	0.6211665		75	115	5.79615	125	11.058	0.23	0.55				103	11.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01573-03	ASP-A-009	0.01915	TH-228	0.0251279	0.041180677	0.025234299	pCi	0.01433	g	ARS-031	MBL	ARS1-B10-01573	0.8272234	U										n			MBL	MB<MDA
ARS1-B10-01573-03	ASP-A-009	0.032068	TH-230	0.023681	0.012336398	0.023996013	pCi	0	g	ARS-031	MBL	ARS1-B10-01573	0.8272234							1.3364		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01573-03	ASP-A-009	-0.00151	TH-232	0.0029681	0.02227619	0.002973777	pCi	0.004982	g	ARS-031	MBL	ARS1-B10-01573	0.8272234	U										n			MBL	MB<MDA
ARS1-B10-01634-01	ASP-A-009	5.878203	TH-230	0.204439	0.0050158	0.739272437	pCi	0	g	ARS-031	LCS	ARS1-B10-01634	0.7126217		75	101.2	5.809727	125		0.09					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01634-02	ASP-A-009	5.917716	TH-230	0.2441374	0.029629088	0.75573801	pCi	0.011273	g	ARS-031	LCSD	ARS1-B10-01634	0.4894961		75	101.2	5.832355	125	0.678	0.11	0.04				101	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01634-03	ASP-A-009	0.005936	TH-228	0.0173118	0.031922682	0.01732663	pCi	0.013479	g	ARS-031	MBL	ARS1-B10-01634	0.6863877	U										n			MBL	MB<MDA
ARS1-B10-01634-03	ASP-A-009	0.012721	TH-230	0.0128422	0.019569524	0.012933913	pCi	0.007322	g	ARS-031	MBL	ARS1-B10-01634	0.6863877	U										n			MBL	MB<MDA
ARS1-B10-01634-03	ASP-A-009	0.003627	TH-232	0.0071093	0.01335314	0.007122833	pCi	0.004219	g	ARS-031	MBL	ARS1-B10-01634	0.6863877	U										n			MBL	MB<MDA
ARS1-B10-01677-01	ASP-A-009	5.768424	TH-230	0.3533522	0.050049877	0.781607402	pCi	0.017417	g	ARS-031	LCS	ARS1-B10-01677	0.7150113		75	100.4	5.747499	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01677-02	ASP-A-009	5.135898	TH-230	0.3100582	0.028294755	0.693857476	pCi	0.007551	g	ARS-031	LCSD	ARS1-B10-01677	0.7489648		75	100.4	5.741842	125	11.549	0.87	0.61				89	11.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01677-03	ASP-A-009	0.007434	TH-228	0.0264276	0.052847182	0.026442867	pCi	0.019864	g	ARS-031	MBL	ARS1-B10-01677	0.7911094	U										n			MBL	MB<MDA
ARS1-B10-01677-03	ASP-A-009	0.037079	TH-230	0.0261622	0.013022052	0.026543238	pCi	0	g	ARS-031	MBL	ARS1-B10-01677	0.7911094							1.3969		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01677-03	ASP-A-009	0.005068	TH-232	0.0142992	0.030688317	0.014312349	pCi	0.008846	g	ARS-031	MBL	ARS1-B10-01677	0.7911094	U										n			MBL	MB<MDA
ARS1-B10-01678-01	ASP-A-009	5.958896	TH-230	0.3470707	0.030558437	0.799461699	pCi	0.008155	g	ARS-031	LCS	ARS1-B10-01678	0.7063154		75	103.3	5.770127	125		0.24					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01678-02	ASP-A-009	5.925465	TH-230	0.3253485	0.035432503	0.786593307	pCi	0.011426	g	ARS-031	LCSD	ARS1-B10-01678	0.8027555		75	103.3	5.775784	125	0.5046	0.19	0.03				103	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01678-03	ASP-A-009	-0.00786	TH-228	0.0127096	0.042056225	0.012745099	pCi	0.014635	g	ARS-031	MBL	ARS1-B10-01678	0.8038962	U										n			MBL	MB<MDA
ARS1-B10-01678-03	ASP-A-009	0.031015	TH-230	0.0236246	0.012694369	0.023920134	pCi	0	g	ARS-031	MBL	ARS1-B10-01678	0.8038962							1.2966		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01678-03	ASP-A-009	-0.00156	TH-232	0.0030543	0.022922593	0.003060069	pCi	0.005127	g	ARS-031	MBL	ARS1-B10-01678	0.8038962	U										n			MBL	MB<MDA
ARS1-B10-01775-01	ASP-A-009	5.091017	TH-230	0.4637933	0.059159181	0.770520439	pCi	0.014698	g	ARS-031	LCS	ARS1-B10-01775	0.3418971		75	88	5.784269	125		0.90					88		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01775-02	ASP-A-009	5.348352	TH-230	0.4519928	0.053487535	0.788756054	pCi	0.013287	g	ARS-031	LCSD	ARS1-B10-01775	0.3846973		75	88	5.771824	125	4.9808	0.54	0.23				93	4.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01775-03	ASP-A-009	-0.02066	TH-228	0.0662859	0.154929771	0.066332852	pCi	0.061325	g	ARS-031	MBL	ARS1-B10-01775	0.3133082	U										n			MBL	MB<MDA
ARS1-B10-01775-03	ASP-A-009	-0.00967	TH-230	0.0272305	0.089827769	0.027255602	pCi	0.028852	g	ARS-031	MBL	ARS1-B10-01775	0.3133082	U										n			MBL	MB<MDA
ARS1-B10-01775-03	ASP-A-009	0.004563	TH-232	0.026225	0.068849396	0.026230822	pCi	0.018395	g	ARS-031	MBL	ARS1-B10-01775	0.3133082	U										n			MBL	MB<MDA
ARS1-B10-01776-01	ASP-A-009	4.710429	TH-230	0.2781582	0.032338273	0.633624419	pCi	0.010387	g	ARS-031	LCS	ARS1-B10-01776	0.8702931		75	81.98	5.745236	125		1.63					82		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01776-01	ASP-A-009	4.710429	TH-230	0.2781582	0.032338273	0.633624419	pCi	0.010387	g	ARS-031	LCS	ARS1-B10-01776	0.8702931		75	81.98	5.745236	125		1.63					82		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01776-02	ASP-A-009	4.828618	TH-230	0.2575855	0.031017183	0.637907924	pCi	0.010674	g	ARS-031	LCSD	ARS1-B10-01776	1.0443281		75	81.98	5.728831	125	2.5157	1.41	0.13				84	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01776-02	ASP-A-009	4.828618	TH-230	0.2575855	0.031017183	0.637907924	pCi	0.010674	g	ARS-031	LCSD	ARS1-B10-01776	1.0443281		75	81.98	5.728831	125	2.5157	1.41	0.00				84	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01776-03	ASP-A-009	0.00843	TH-228	0.0238964	0.046606601	0.023918147	pCi	0.017406	g	ARS-031	MBL	ARS1-B10-01776	0.8699678	U										n			MBL	MB<MDA
ARS1-B10-01776-03	ASP-A-009	0.00843	TH-228	0.0238964	0.046606601	0.023918147	pCi	0.017406	g	ARS-031	MBL	ARS1-B10-01776	0.8699678	U										n			MBL	MB<MDA
ARS1-B10-01776-03	ASP-A-009	0.034105	TH-230	0.0240783	0.017702664	0.024428584	pCi	0.002986	g	ARS-031	MBL	ARS1-B10-01776	0.8699678							1.3961		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01776-03	ASP-A-009	0.034105	TH-230	0.0240783	0.017702664	0.024428584	pCi	0.002986	g	ARS-031	MBL	ARS1-B10-01776	0.8699678							1.3961		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01776-03	ASP-A-009	0.00432	TH-232	0.0084669	0.011706805	0.008482997	pCi	0	g	ARS-031	MBL	ARS1-B10-01776	0.8699678	U										n			MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MARLAP MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01776-03	ASP-A-009	0.00432	TH-232	0.0084669	0.011706805	0.008482997	pCi	0	g	ARS-031	MBL	ARS1-B10-01776	0.8699678	U									n			MBL	MB<MDA
ARS1-B10-01789-01	ASP-A-009	5.718814	TH-230	0.3581086	0.023868962	0.778440589	pCi	0.004026	g	ARS-031	LCS	ARS1-B10-01789	0.6452206		75	99.07	5.773521	125		0.07				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01789-01	ASP-A-009	5.718814	TH-230	0.3581086	0.023868962	0.778440589	pCi	0.004026	g	ARS-031	LCS	ARS1-B10-01789	0.6452206		75	99.07	5.773521	125		0.07				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01789-02	ASP-A-009	6.124329	TH-230	0.3312761	0.037516263	0.810940347	pCi	0.01245	g	ARS-031	LCSD	ARS1-B10-01789	0.8290951		75	99.07	5.810857	125	6.7568	0.39	0.36			105	6.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01789-02	ASP-A-009	6.124329	TH-230	0.3312761	0.037516263	0.810940347	pCi	0.01245	g	ARS-031	LCSD	ARS1-B10-01789	0.8290951		75	99.07	5.810857	125	6.7568	0.39	0.00			105	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01789-03	ASP-A-009	0.011407	TH-228	0.0297526	0.056091601	0.029784489	pCi	0.022086	g	ARS-031	MBL	ARS1-B10-01789	0.8224433	U									n			MBL	MB<MDA
ARS1-B10-01789-03	ASP-A-009	0.011407	TH-228	0.0297526	0.056091601	0.029784489	pCi	0.022086	g	ARS-031	MBL	ARS1-B10-01789	0.8224433	U									n			MBL	MB<MDA
ARS1-B10-01789-03	ASP-A-009	0.026004	TH-230	0.0234726	0.029754422	0.023682041	pCi	0.008945	g	ARS-031	MBL	ARS1-B10-01789	0.8224433	U									n			MBL	MB<MDA
ARS1-B10-01789-03	ASP-A-009	0.026004	TH-230	0.0234726	0.029754422	0.023682041	pCi	0.008945	g	ARS-031	MBL	ARS1-B10-01789	0.8224433	U									n			MBL	MB<MDA
ARS1-B10-01789-03	ASP-A-009	0.002385	TH-232	0.0094059	0.023523017	0.009410354	pCi	0.005841	g	ARS-031	MBL	ARS1-B10-01789	0.8224433	U									n			MBL	MB<MDA
ARS1-B10-01789-03	ASP-A-009	0.002385	TH-232	0.0094059	0.023523017	0.009410354	pCi	0.005841	g	ARS-031	MBL	ARS1-B10-01789	0.8224433	U									n			MBL	MB<MDA
ARS1-B10-01790-01	ASP-A-009	6.223827	TH-230	0.3253966	0.030062582	0.819579178	pCi	0.009037	g	ARS-031	LCS	ARS1-B10-01790	0.8140128		75	107.9	5.76447	125		0.56				108		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01790-01	ASP-A-009	6.223827	TH-230	0.3253966	0.030062582	0.819579178	pCi	0.009037	g	ARS-031	LCS	ARS1-B10-01790	0.8140128		75	107.9	5.76447	125		0.56				108		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01790-02	ASP-A-009	5.833652	TH-230	0.3078297	0.03099291	0.769328233	pCi	0.009775	g	ARS-031	LCSD	ARS1-B10-01790	0.8895633		75	107.9	5.843668	125	6.473	0.01	0.35			100	6.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01790-02	ASP-A-009	5.833652	TH-230	0.3078297	0.03099291	0.769328233	pCi	0.009775	g	ARS-031	LCSD	ARS1-B10-01790	0.8895633		75	107.9	5.843668	125	6.473	0.01	0.00			100	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01790-03	ASP-A-009	0.023356	TH-228	0.0292696	0.048079702	0.029405423	pCi	0.018216	g	ARS-031	MBL	ARS1-B10-01790	0.8768274	U									n			MBL	MB<MDA
ARS1-B10-01790-03	ASP-A-009	0.023356	TH-228	0.0292696	0.048079702	0.029405423	pCi	0.018216	g	ARS-031	MBL	ARS1-B10-01790	0.8768274	U									n			MBL	MB<MDA
ARS1-B10-01790-03	ASP-A-009	0.019832	TH-230	0.0215618	0.031387426	0.021694595	pCi	0.0099	g	ARS-031	MBL	ARS1-B10-01790	0.8768274	U									n			MBL	MB<MDA
ARS1-B10-01790-03	ASP-A-009	0.019832	TH-230	0.0215618	0.031387426	0.021694595	pCi	0.0099	g	ARS-031	MBL	ARS1-B10-01790	0.8768274	U									n			MBL	MB<MDA
ARS1-B10-01790-03	ASP-A-009	0.00233	TH-232	0.0091863	0.022973279	0.009190569	pCi	0.005704	g	ARS-031	MBL	ARS1-B10-01790	0.8768274	U									n			MBL	MB<MDA
ARS1-B10-01790-03	ASP-A-009	0.00233	TH-232	0.0091863	0.022973279	0.009190569	pCi	0.005704	g	ARS-031	MBL	ARS1-B10-01790	0.8768274	U									n			MBL	MB<MDA
ARS1-B10-01803-01	ASP-A-009	5.654877	TH-230	0.3315629	0.027242627	0.759631171	pCi	0.006768	g	ARS-031	LCS	ARS1-B10-01803	0.7424523		75	97.99	5.766167	125		0.15				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01803-01	ASP-A-009	5.654877	TH-230	0.3315629	0.027242627	0.759631171	pCi	0.006768	g	ARS-031	LCS	ARS1-B10-01803	0.7424523		75	97.99	5.766167	125		0.15				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01803-02	ASP-A-009	5.801634	TH-230	0.3135903	0.023751954	0.768117094	pCi	0.0059	g	ARS-031	LCSD	ARS1-B10-01803	0.8663081		75	97.99	5.827828	125	2.6201	0.03	0.14			100	2.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01803-02	ASP-A-009	5.801634	TH-230	0.3135903	0.023751954	0.768117094	pCi	0.0059	g	ARS-031	LCSD	ARS1-B10-01803	0.8663081		75	97.99	5.827828	125	2.6201	0.03	0.00			100	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01803-03	ASP-A-009	-0.00237	TH-228	0.0259152	0.056547422	0.025916758	pCi	0.022383	g	ARS-031	MBL	ARS1-B10-01803	0.8589029	U									n			MBL	MB<MDA
ARS1-B10-01803-03	ASP-A-009	-0.00237	TH-228	0.0259152	0.056547422	0.025916758	pCi	0.022383	g	ARS-031	MBL	ARS1-B10-01803	0.8589029	U									n			MBL	MB<MDA
ARS1-B10-01803-03	ASP-A-009	0.016454	TH-230	0.0207501	0.032767122	0.02084513	pCi	0.010525	g	ARS-031	MBL	ARS1-B10-01803	0.8589029	U									n			MBL	MB<MDA
ARS1-B10-01803-03	ASP-A-009	0.016454	TH-230	0.0207501	0.032767122	0.02084513	pCi	0.010525	g	ARS-031	MBL	ARS1-B10-01803	0.8589029	U									n			MBL	MB<MDA
ARS1-B10-01803-03	ASP-A-009	0.001664	TH-232	0.0095663	0.025114689	0.009568406	pCi	0.00671	g	ARS-031	MBL	ARS1-B10-01803	0.8589029	U									n			MBL	MB<MDA
ARS1-B10-01803-03	ASP-A-009	0.001664	TH-232	0.0095663	0.025114689	0.009568406	pCi	0.00671	g	ARS-031	MBL	ARS1-B10-01803	0.8589029	U									n			MBL	MB<MDA
ARS1-B10-01830-01	ASP-A-009	5.735608	TH-230	0.9993301	0.327641483	1.216223059	pCi	0.103339	g	ARS-031	LCS	ARS1-B10-01830	0.0841473		75	98.21	5.804068	125		0.06				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-01	ASP-A-009	5.735608	TH-230	0.9993301	0.327641483	1.216223059	pCi	0.103339	g	ARS-031	LCS	ARS1-B10-01830	0.0841473		75	98.21	5.804068	125		0.06				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-01	ASP-A-009	5.735608	TH-230	0.9993301	0.327641483	1.216223059	pCi	0.103339	g	ARS-031	LCS	ARS1-B10-01830	0.0841473		75	98.21	5.804068	125		0.06				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-01	ASP-A-009	5.735608	TH-230	0.9993301	0.327641483	1.216223059	pCi	0.103339	g	ARS-031	LCS	ARS1-B10-01830	0.0841473		75	98.21	5.804068	125		0.06				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-01	ASP-A-009	5.735608	TH-230	0.9993301	0.327641483	1.216223059	pCi	0.103339	g	ARS-031	LCS	ARS1-B10-01830	0.0841473		75	98.21	5.804068	125		0.06				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-02	ASP-A-009	5.713149	TH-230	0.3059939	0.031268228	0.75525764	pCi	0.009862	g	ARS-031	LCSD	ARS1-B10-01830	0.88017		75	98.21	5.802937	125	0.524	0.12	0.02			98	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-02	ASP-A-009	5.713149	TH-230	0.3059939	0.031268228	0.75525764	pCi	0.009862	g	ARS-031	LCSD	ARS1-B10-01830	0.88017		75	98.21	5.802937	125	0.524	0.12	0.00			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-02	ASP-A-009	5.713149	TH-230	0.3059939	0.031268228	0.75525764	pCi	0.009862	g	ARS-031	LCSD	ARS1-B10-01830	0.88017		75	98.21	5.802937	125	0.524	0.12	0.00			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-02	ASP-A-009	5.713149	TH-230	0.3059939	0.031268228	0.75525764	pCi	0.009862	g	ARS-031	LCSD	ARS1-B10-01830	0.88017		75	98.21	5.802937	125	0.524	0.12	0.00			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-02	ASP-A-009	5.713149	TH-230	0.3059939	0.031268228	0.75525764	pCi	0.009862	g	ARS-031	LCSD	ARS1-B10-01830	0.88017		75	98.21	5.802937	125	0.524	0.12	0.00			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01830-03	ASP-A-009	0.011302	TH-228	0.0341193	0.064464641	0.034146647	pCi	0.026113	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.011302	TH-228	0.0341193	0.064464641	0.034146647	pCi	0.026113	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.011302	TH-228	0.0341193	0.064464641	0.034146647	pCi	0.026113	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.011302	TH-228	0.0341193	0.064464641	0.034146647	pCi	0.026113	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.011302	TH-228	0.0341193	0.064464641	0.034146647	pCi	0.026113	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.032262	TH-230	0.0275894	0.036180053	0.027863542	pCi	0.012005	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.032262	TH-230	0.0275894	0.036180053	0.027863542	pCi	0.012005	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.032262	TH-230	0.0275894	0.036180053	0.027863542	pCi	0.012005	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	0.032262	TH-230	0.0275894	0.036180053	0.027863542	pCi	0.012005	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	-0.00488	TH-232	0.0082913	0.032897414	0.008312265	pCi	0.010376	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	-0.00488	TH-232	0.0082913	0.032897414	0.008312265	pCi	0.010376	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	-0.00488	TH-232	0.0082913	0.032897414	0.008312265	pCi	0.010376	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	-0.00488	TH-232	0.0082913	0.032897414	0.008312265	pCi	0.010376	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01830-03	ASP-A-009	-0.00488	TH-232	0.0082913	0.032897414	0.008312265	pCi	0.010376	g	ARS-031	MBL	ARS1-B10-01830	0.8869745	U									n			MBL	MB<MDA
ARS1-B10-01839-01	ASP-A-009	5.893464	TH-230	0.324471	0.037385917	0.782709419	pCi	0.012405	g	ARS-031	LCS	ARS1-B10-01839	0.8583656		75	101.7	5.79332	125		0.13				102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01839-01	ASP-A-009	5.893464	TH-230	0.324471	0.037385917	0.782709419	pCi	0.012405	g	ARS-031	LCS	ARS1-B10-01839	0.8583656		75	101.7	5.79332	125		0.13				102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01839-02	ASP-A-009	5.827851	TH-230	0.3301704	0.03139011	0.777901701	pCi	0.009104	g	ARS-031	LCSD	ARS1-B10-01839	0.7778607		75	101.7	5.795583	125	1.0239	0.04	0.06			101	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01839-02	ASP-A-009	5.827851	TH-230	0.3301704	0.03139011	0.777901701	pCi	0.009104	g	ARS-031	LCSD	ARS1-B10-01839	0.7778607		75	101.7	5.795583	125	1.0239	0.04	0.00			101	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01839-03	ASP-A-009	0.002104	TH-228	0.0272698	0.057715709	0.027271009	pCi	0.022275	g	ARS-031	MBL	ARS1-B10-01839	0.7637903	U									n			MBL	MB<MDA
ARS1-B10-01839-03	ASP-A-009	0.002104	TH-228	0.0272698	0.057715709	0.027271009	pCi	0.022275	g	ARS-031	MBL	ARS1-B10-01839	0.7637903	U									n			MBL	MB<MDA
ARS1-B10-01839-03	ASP-A-009	0.06326	TH-230	0.0359519	0.031352342	0.03675587	pCi	0.009129	g	ARS-031	MBL	ARS1-B10-01839	0.7637903							1.7211		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01839-03	ASP-A-009	0.06326	TH-230	0.0359519	0.031352342	0.03675587	pCi	0.009129	g	ARS-031	MBL	ARS1-B10-01839	0.7637903							1.7211		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01839-03	ASP-A-009	-0.00261	TH-232	0.015695	0.041878971	0.015698151	pCi	0.014406	g	ARS-031	MBL	ARS1-B10-01839	0.7637903	U									n			MBL	MB<MDA
ARS1-B10-01839-03	ASP-A-009	-0.00261	TH-232	0.015695	0.041878971	0.015698151	pCi	0.014406	g	ARS-031	MBL	ARS1-B10-01839	0.7637903	U									n			MBL	MB<MDA
ARS1-B10-01853-01	ASP-A-009	6.042015	TH-230	0.3216291	0.028890654	0.797932909	pCi	0.008412	g	ARS-031	LCS	ARS1-B10-01853	0.8288706		75	105.2	5.742407	125		0.38				105		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01853-02	ASP-A-009	5.60184	TH-230	0.3032591	0.034348458	0.741856329	pCi	0.011395	g	ARS-031	LCSD	ARS1-B10-01853	0.8959553		75	105.2	5.742973	125	7.5601	0.19	0.40			98	7.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01853-03	ASP-A-009	-0.00832	TH-228	0.0209264	0.052331565	0.020950523	pCi	0.020192	g	ARS-031	MBL	ARS1-B10-01853	0.9156275	U									n			MBL	MB<MDA
ARS1-B10-01853-03	ASP-A-009	0.054171	TH-230	0.0321926	0.030566439	0.032851609	pCi	0.009342	g	ARS-031	MBL	ARS1-B10-01853	0.9156275							1.649		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01853-03	ASP-A-009	0.010681	TH-232	0.0167671	0.02877699	0.016816708	pCi	0.008459	g	ARS-031	MBL	ARS1-B10-01853	0.9156275	U									n			MBL	MB<MDA
ARS1-B10-01878-01	ASP-A-009	5.700358	TH-230	0.3166784	0.031881843	0.758244391	pCi	0.009744	g	ARS-031	LCS	ARS1-B10-01878	0.8778499		75	98.38	5.793886	125		0.12				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01878-01	ASP-A-009	5.700358	TH-230	0.3166784	0.031881843	0.758244391	pCi	0.009744	g	ARS-031	LCS	ARS1-B10-01878	0.8778499		75	98.38	5.793886	125		0.12				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01878-01	ASP-A-009	5.700358	TH-230	0.3166784	0.031881843	0.758244391	pCi	0.009744	g	ARS-031	LCS	ARS1-B10-01878	0.8778499		75	98.38	5.793886	125		0.12				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01878-02	ASP-A-009	5.923736	TH-230	0.3305091	0.038566681	0.788552159	pCi	0.012793	g	ARS-031	LCSD	ARS1-B10-01878	0.7612357		75	98.38	5.761641	125	3.7866	0.21	0.20			103	3.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01878-02	ASP-A-009	5.923736	TH-230	0.3305091	0.038566681	0.788552159	pCi	0.012793	g	ARS-031	LCSD	ARS1-B10-01878	0.7612357		75	98.38	5.761641	125	3.7866	0.21	0.00			103	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01878-02	ASP-A-009	5.923736	TH-230	0.3305091	0.038566681	0.788552159	pCi	0.012793	g	ARS-031	LCSD	ARS1-B10-01878	0.7612357		75	98.38	5.761641	125	3.7866	0.21	0.00			103	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01878-03	ASP-A-009	-0.01149	TH-228	0.0184711	0.052068745	0.018523162	pCi	0.01966	g	ARS-031	MBL	ARS1-B10-01878	0.8125464	U									n			MBL	MB<MDA
ARS1-B10-01878-03	ASP-A-009	-0.01149	TH-228	0.0184711	0.052068745	0.018523162	pCi	0.01966	g	ARS-031	MBL	ARS1-B10-01878	0.8125464	U									n			MBL	MB<MDA
ARS1-B10-01878-03	ASP-A-009	-0.01149	TH-228	0.0184711	0.052068745	0.018523162	pCi	0.01966	g	ARS-031	MBL	ARS1-B10-01878	0.8125464	U									n			MBL	MB<MDA
ARS1-B10-01878-03	ASP-A-009	0.037238	TH-230	0.0279296	0.030347017	0.028289911	pCi	0.008834	g	ARS-031	MBL	ARS1-B10-01878	0.8125464							1.3163		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01878-03	ASP-A-009	0.037238	TH-230	0.0279296	0.030347017	0.028289911	pCi	0.008834	g	ARS-031	MBL	ARS1-B10-01878	0.8125464							1.3163		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01878-03	ASP-A-009	0.037238	TH-230	0.0279296	0.030347017	0.028289911	pCi	0.008834	g	ARS-031	MBL	ARS1-B10-01878	0.8125464							1.3163		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01878-03	ASP-A-009	-0.00168	TH-232	0.0116353	0.034249289	0.011637059	pCi	0.010798	g	ARS-031	MBL	ARS1-B10-01878	0.8125464	U									n			MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > ACT	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01878-03	ASP-A-009	-0.00168	TH-232	0.0116353	0.034249289	0.011637059	pCi	0.010798	g	ARS-031	MBL	ARS1-B10-01878	0.8125464	U									n				MBL	MB<MDA
ARS1-B10-01878-03	ASP-A-009	-0.00168	TH-232	0.0116353	0.034249289	0.011637059	pCi	0.010798	g	ARS-031	MBL	ARS1-B10-01878	0.8125464	U									n				MBL	MB<MDA
ARS1-B10-01887-01	ASP-A-009	5.712326	TH-230	0.3043274	0.027349683	0.754492975	pCi	0.007962	g	ARS-031	LCS	ARS1-B10-01887	0.9015958		75	99.08	5.762772	125		0.07					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01887-02	ASP-A-009	6.014396	TH-230	0.312422	0.044902111	0.791198578	pCi	0.01675	g	ARS-031	LCSD	ARS1-B10-01887	0.9083669		75	99.08	5.815382	125	5.1195	0.25	0.28				103	5.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01887-03	ASP-A-009	-0.00595	TH-228	0.0237826	0.05907306	0.023793451	pCi	0.02207	g	ARS-031	MBL	ARS1-B10-01887	0.7219053	U									n				MBL	MB<MDA
ARS1-B10-01887-03	ASP-A-009	0.022095	TH-230	0.0232648	0.029488573	0.023417585	pCi	0.007317	g	ARS-031	MBL	ARS1-B10-01887	0.7219053	U									n				MBL	MB<MDA
ARS1-B10-01887-03	ASP-A-009	0.013931	TH-232	0.0191955	0.029429595	0.019269178	pCi	0.007303	g	ARS-031	MBL	ARS1-B10-01887	0.7219053	U									n				MBL	MB<MDA
ARS1-B10-01903-01	ASP-A-009	5.654816	TH-230	0.3081935	0.033078754	0.749719072	pCi	0.010625	g	ARS-031	LCS	ARS1-B10-01903	0.8508112		75	97.92	5.770126	125		0.15					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01903-01	ASP-A-009	5.654816	TH-230	0.3081935	0.033078754	0.749719072	pCi	0.010625	g	ARS-031	LCS	ARS1-B10-01903	0.8508112		75	97.92	5.770126	125		0.15					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01903-02	ASP-A-009	6.050712	TH-230	0.3261193	0.039674071	0.800713329	pCi	0.013653	g	ARS-031	LCSD	ARS1-B10-01903	0.8164556		75	97.92	5.765035	125	6.8376	0.36	0.36				105	6.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01903-02	ASP-A-009	6.050712	TH-230	0.3261193	0.039674071	0.800713329	pCi	0.013653	g	ARS-031	LCSD	ARS1-B10-01903	0.8164556		75	97.92	5.765035	125	6.8376	0.36	0.00				105	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01903-03	ASP-A-009	0.022034	TH-228	0.0288112	0.047793499	0.028934011	pCi	0.017849	g	ARS-031	MBL	ARS1-B10-01903	0.8486669	U									n				MBL	MB<MDA
ARS1-B10-01903-03	ASP-A-009	0.022034	TH-228	0.0288112	0.047793499	0.028934011	pCi	0.017849	g	ARS-031	MBL	ARS1-B10-01903	0.8486669	U									n				MBL	MB<MDA
ARS1-B10-01903-03	ASP-A-009	0.04276	TH-230	0.0272429	0.018146987	0.027728799	pCi	0.003061	g	ARS-031	MBL	ARS1-B10-01903	0.8486669							1.5421		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01903-03	ASP-A-009	0.04276	TH-230	0.0272429	0.018146987	0.027728799	pCi	0.003061	g	ARS-031	MBL	ARS1-B10-01903	0.8486669							1.5421		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01903-03	ASP-A-009	0.008857	TH-232	0.0122746	0.012000637	0.012321149	pCi	0	g	ARS-031	MBL	ARS1-B10-01903	0.8486669	U									n				MBL	MB<MDA
ARS1-B10-01903-03	ASP-A-009	0.008857	TH-232	0.0122746	0.012000637	0.012321149	pCi	0	g	ARS-031	MBL	ARS1-B10-01903	0.8486669	U									n				MBL	MB<MDA
ARS1-B10-01915-01	ASP-A-009	5.533318	TH-230	0.2952393	0.022077366	0.731030438	pCi	0.005485	g	ARS-031	LCS	ARS1-B10-01915	0.9161579		75	95.03	5.819342	125		0.39					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01915-01	ASP-A-009	5.533318	TH-230	0.2952393	0.022077366	0.731030438	pCi	0.005485	g	ARS-031	LCS	ARS1-B10-01915	0.9161579		75	95.03	5.819342	125		0.39					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01915-02	ASP-A-009	5.475762	TH-230	0.3148613	0.025368193	0.732885515	pCi	0.006302	g	ARS-031	LCSD	ARS1-B10-01915	0.8111146		75	95.03	5.77352	125	0.9083	0.41	0.06				95	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01915-02	ASP-A-009	5.475762	TH-230	0.3148613	0.025368193	0.732885515	pCi	0.006302	g	ARS-031	LCSD	ARS1-B10-01915	0.8111146		75	95.03	5.77352	125	0.9083	0.41	0.00				95	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01915-03	ASP-A-009	-0.00906	TH-228	0.0290846	0.067979414	0.029105242	pCi	0.026908	g	ARS-031	MBL	ARS1-B10-01915	0.7151959	U									n				MBL	MB<MDA
ARS1-B10-01915-03	ASP-A-009	-0.00906	TH-228	0.0290846	0.067979414	0.029105242	pCi	0.026908	g	ARS-031	MBL	ARS1-B10-01915	0.7151959	U									n				MBL	MB<MDA
ARS1-B10-01915-03	ASP-A-009	0.002569	TH-230	0.016675	0.039351143	0.016677874	pCi	0.012639	g	ARS-031	MBL	ARS1-B10-01915	0.7151959	U									n				MBL	MB<MDA
ARS1-B10-01915-03	ASP-A-009	0.002569	TH-230	0.016675	0.039351143	0.016677874	pCi	0.012639	g	ARS-031	MBL	ARS1-B10-01915	0.7151959	U									n				MBL	MB<MDA
ARS1-B10-01915-03	ASP-A-009	0.000456	TH-232	0.0100631	0.030161078	0.010063242	pCi	0.008059	g	ARS-031	MBL	ARS1-B10-01915	0.7151959	U									n				MBL	MB<MDA
ARS1-B10-01915-03	ASP-A-009	0.000456	TH-232	0.0100631	0.030161078	0.010063242	pCi	0.008059	g	ARS-031	MBL	ARS1-B10-01915	0.7151959	U									n				MBL	MB<MDA
ARS1-B10-01917-01	ASP-A-009	5.276124	TH-230	0.2806609	0.029403864	0.696706397	pCi	0.009444	g	ARS-031	LCS	ARS1-B10-01917	0.9571455		75	90.96	5.804633	125		0.76					91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01917-01	ASP-A-009	5.276124	TH-230	0.2806609	0.029403864	0.696706397	pCi	0.009444	g	ARS-031	LCS	ARS1-B10-01917	0.9571455		75	90.96	5.804633	125		0.76					91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01917-01	ASP-A-009	5.276124	TH-230	0.2806609	0.029403864	0.696706397	pCi	0.009444	g	ARS-031	LCS	ARS1-B10-01917	0.9571455		75	90.96	5.804633	125		0.76					91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01917-02	ASP-A-009	5.378905	TH-230	0.2911685	0.035575073	0.712323878	pCi	0.012242	g	ARS-031	LCSD	ARS1-B10-01917	0.9105285		75	90.96	5.775217	125	1.8762	0.56	0.10				93	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01917-02	ASP-A-009	5.378905	TH-230	0.2911685	0.035575073	0.712323878	pCi	0.012242	g	ARS-031	LCSD	ARS1-B10-01917	0.9105285		75	90.96	5.775217	125	1.8762	0.56	0.00				93	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01917-02	ASP-A-009	5.378905	TH-230	0.2911685	0.035575073	0.712323878	pCi	0.012242	g	ARS-031	LCSD	ARS1-B10-01917	0.9105285		75	90.96	5.775217	125	1.8762	0.56	0.00				93	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01917-03	ASP-A-009	-0.00348	TH-228	0.0228145	0.052349308	0.022818364	pCi	0.020204	g	ARS-031	MBL	ARS1-B10-01917	0.8429948	U									n				MBL	MB<MDA
ARS1-B10-01917-03	ASP-A-009	-0.00348	TH-228	0.0228145	0.052349308	0.022818364	pCi	0.020204	g	ARS-031	MBL	ARS1-B10-01917	0.8429948	U									n				MBL	MB<MDA
ARS1-B10-01917-03	ASP-A-009	-0.00348	TH-228	0.0228145	0.052349308	0.022818364	pCi	0.020204	g	ARS-031	MBL	ARS1-B10-01917	0.8429948	U									n				MBL	MB<MDA
ARS1-B10-01917-03	ASP-A-009	0.066545	TH-230	0.034875	0.028406599	0.035790343	pCi	0.008271	g	ARS-031	MBL	ARS1-B10-01917	0.8429948							1.8593		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01917-03	ASP-A-009	0.066545	TH-230	0.034875	0.028406599	0.035790343	pCi	0.008271	g	ARS-031	MBL	ARS1-B10-01917	0.8429948							1.8593		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01917-03	ASP-A-009	0.066545	TH-230	0.034875	0.028406599	0.035790343	pCi	0.008271	g	ARS-031	MBL	ARS1-B10-01917	0.8429948							1.8593		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01917-03	ASP-A-009	-0.00117	TH-232	0.0149045	0.037944186	0.014905192	pCi	0.013052	g	ARS-031	MBL	ARS1-B10-01917	0.8429948	U									n				MBL	MB<MDA
ARS1-B10-01917-03	ASP-A-009	-0.00117	TH-232	0.0149045	0.037944186	0.014905192	pCi	0.013052	g	ARS-031	MBL	ARS1-B10-01917	0.8429948	U									n				MBL	MB<MDA
ARS1-B10-01917-03	ASP-A-009	-0.00117	TH-232	0.0149045	0.037944186	0.014905192	pCi	0.013052	g	ARS-031	MBL	ARS1-B10-01917	0.8429948	U									n				MBL	MB<MDA
ARS1-B10-01928-01	ASP-A-009	6.50383	TH-230	0.3333907	0.023951826	0.853834566	pCi	0.005951	g	ARS-031	LCS	ARS1-B10-01928	0.8444597		75	111.8	5.814816	125		0.81					112		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01928-02	ASP-A-009	5.765574	TH-230	0.3603217	0.031549257	0.784476786	pCi	0.007837	g	ARS-031	LCSD	ARS1-B10-01928	0.6522027		75	111.8	5.775783	125	11.899	0.01	0.64				100	12.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01928-03	ASP-A-009	0.01098	TH-228	0.0329879	0.063034456	0.033014552	pCi	0.024951	g	ARS-031	MBL	ARS1-B10-01928	0.7705084	U									n				MBL	MB<MDA
ARS1-B10-01928-03	ASP-A-009	0.036339	TH-230	0.0294662	0.03652624	0.029791721	pCi	0.011732	g	ARS-031	MBL	ARS1-B10-01928	0.7705084	U									n				MBL	MB<MDA
ARS1-B10-01928-03	ASP-A-009	0.009787	TH-232	0.0161333	0.027995903	0.01617661	pCi	0.00748	g	ARS-031	MBL	ARS1-B10-01928	0.7705084	U									n				MBL	MB<MDA
ARS1-B10-01930-01	ASP-A-009	5.862957	TH-230	0.3406955	0.037762105	0.786248781	pCi	0.01191	g	ARS-031	LCS	ARS1-B10-01930	0.7288089		75	101.8	5.75768	125		0.13					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01930-02	ASP-A-009	6.12903	TH-230	0.3409305	0.039686998	0.815447912	pCi	0.013169	g	ARS-031	LCSD	ARS1-B10-01930	0.8085969		75	101.8	5.739012	125	4.5038	0.48	0.23				107	4.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01930-03	ASP-A-009	0.000968	TH-228	0.0299403	0.062591606	0.029940507	pCi	0.02488	g	ARS-031	MBL	ARS1-B10-01930	0.8037257	U									n				MBL	MB<MDA
ARS1-B10-01930-03	ASP-A-009	0.061382	TH-230	0.0349322	0.030379935	0.035711246	pCi	0.008811	g	ARS-031	MBL	ARS1-B10-01930	0.8037257							1.7188		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01930-03	ASP-A-009	-0.00213	TH-232	0.0041797	0.025287967	0.004187648	pCi	0.006278	g	ARS-031	MBL	ARS1-B10-01930	0.8037257	U									n				MBL	MB<MDA
ARS1-B10-01945-01	ASP-A-009	6.192119	TH-230	0.3325841	0.030132828	0.818955737	pCi	0.008772	g	ARS-031	LCS	ARS1-B10-01945	0.8183221		75	107.9	5.735618	125		0.56					108		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01945-01	ASP-A-009	6.192119	TH-230	0.3325841	0.030132828	0.818955737	pCi	0.008772	g	ARS-031	LCS	ARS1-B10-01945	0.8183221		75	107.9	5.735618	125		0.56					108		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01945-02	ASP-A-009	6.035223	TH-230	0.3192705	0.023670777	0.796233169	pCi	0.005881	g	ARS-031	LCSD	ARS1-B10-01945	0.8544863		75	107.9	5.740709	125	2.453	0.37	0.14				105	2.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01945-02	ASP-A-009	6.035223	TH-230	0.3192705	0.023670777	0.796233169	pCi	0.005881	g	ARS-031	LCSD	ARS1-B10-01945	0.8544863		75	107.9	5.740709	125	2.453	0.37	0.00				105	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01945-03	ASP-A-009	-0.01197	TH-228	0.0279268	0.0665838	0.027964195	pCi	0.026622	g	ARS-031	MBL	ARS1-B10-01945	0.7812507	U									n				MBL	MB<MDA
ARS1-B10-01945-03	ASP-A-009	-0.01197	TH-228	0.0279268	0.0665838	0.027964195	pCi	0.026622	g	ARS-031	MBL	ARS1-B10-01945	0.7812507	U									n				MBL	MB<MDA
ARS1-B10-01945-03	ASP-A-009	0.021838	TH-230	0.0217029	0.02633791	0.021862796	pCi	0.006543	g	ARS-031	MBL	ARS1-B10-01945	0.7812507	U									n				MBL	MB<MDA
ARS1-B10-01945-03	ASP-A-009	0.021838	TH-230	0.0217029	0.02633791	0.021862796	pCi	0.006543	g	ARS-031	MBL	ARS1-B10-01945	0.7812507	U									n				MBL	MB<MDA
ARS1-B10-01945-03	ASP-A-009	0	TH-232	0.0095656	0.013225932	0.009565619	pCi	0	g	ARS-031	MBL	ARS1-B10-01945	0.7812507	U									n				MBL	MB<MDA
ARS1-B10-01945-03	ASP-A-009	0	TH-232	0.0095656	0.013225932	0.009565619	pCi	0	g	ARS-031	MBL	ARS1-B10-01945	0.7812507	U									n				MBL	MB<MDA
ARS1-B10-01952-01	ASP-A-009	6.113326	TH-230	0.3224273	0.028541288	0.806146934	pCi	0.008278	g	ARS-031	LCS	ARS1-B10-01952	0.8555022		75	106.6	5.733355	125		0.47					107		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01952-01	ASP-A-009	6.113326	TH-230	0.3224273	0.028541288	0.806146934	pCi	0.008278	g	ARS-031	LCS	ARS1-B10-01952	0.8555022		75	106.6	5.733355	125		0.47					107		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01952-02	ASP-A-009	6.238327	TH-230	0.3285623	0.02920147	0.8224474	pCi	0.008503	g	ARS-031	LCSD	ARS1-B10-01952	0.8200483		75	106.6	5.733921	125	2.1053	0.61	0.11				109	2.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01952-02	ASP-A-009	6.238327	TH-230	0.3285623	0.02920147	0.8224474	pCi	0.008503	g	ARS-031	LCSD	ARS1-B10-01952	0.8200483		75	106.6	5.733921	125	2.1053	0.61	0.00				109	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01952-03	ASP-A-009	0.011728	TH-228	0.0295258	0.057256475	0.029559832	pCi	0.020695	g	ARS-031	MBL	ARS1-B10-01952	0.6564382	U									n				MBL	MB<MDA
ARS1-B10-01952-03	ASP-A-009	0.011728	TH-228	0.0295258	0.057256475	0.029559832	pCi	0.020695	g	ARS-031	MBL	ARS1-B10-01952	0.6564382	U									n				MBL	MB<MDA
ARS1-B10-01952-03	ASP-A-009	0.059289	TH-230	0.0408566	0.046881314	0.041480255	pCi	0.015553	g	ARS-031	MBL	ARS1-B10-01952	0.6564382							1.4293		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01952-03	ASP-A-009	0.059289	TH-230	0.0408566	0.046881314	0.041480255	pCi	0.015553	g	ARS-031	MBL	ARS1-B10-01952	0.6564382							1.4293		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01952-03	ASP-A-009	0.006886	TH-232	0.0222645	0.04678755	0.022280069	pCi	0.015522	g	ARS-031	MBL	ARS1-B10-01952	0.6564382	U									n				MBL	MB<MDA
ARS1-B10-01952-03	ASP-A-009	0.006886	TH-232	0.0222645	0.04678755	0.022280069	pCi	0.015522	g	ARS-031	MBL	ARS1-B10-01952	0.6564382	U									n				MBL	MB<MDA
ARS1-B10-01953-01	ASP-A-009	6.484025	TH-230	0.3381286	0.033643857	0.853497413	pCi	0.010611	g	ARS-031	LCS	ARS1-B10-01953	0.8180203		75	112.9	5.737315	125		0.87					113		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01953-01	ASP-A-009	6.484025	TH-230	0.3381286	0.033643857	0.853497413	pCi	0.010611	g	ARS-031	LCS	ARS1-B10-01953	0.8180203		75	112.9	5.737315	125		0.87					113		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01953-02	ASP-A-009	6.171938	TH-230	0.3398598	0.039165588	0.81971715	pCi	0.012996	g	ARS-031	LCSD	ARS1-B10-01953	0.8193618		75	112.9	5.735052	125	4.9012	0.53	0.26				108	4.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01953-02	ASP-A-009	6.171938	TH-230	0.3398598	0.039165588	0.81971715	pCi	0.012996	g	ARS-031	LCSD	ARS1-B10-01953	0.8193618		75	112.9	5.735052	125	4.9012	0.53	0.00				108	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01953-03	ASP-A-009	0.000904	TH-228	0.0279789	0.058491214	0.027979097	pCi	0.023251	g	ARS-031	MBL	ARS1-B10-01953	0.8601763	U									n				MBL	MB<MDA
ARS1-B10-01953-03	ASP-A-009	0.000904	TH-228	0.0279789	0.058491214	0.027979097	pCi	0.023251	g	ARS-031	MBL	ARS1-B10-01953	0.8601763	U									n				MBL	MB<MDA
ARS1-B10-01953-03	ASP-A-009	0.039593	TH-230	0.0276628	0.028386198	0.02807367	pCi	0.008233	g	ARS-031	MBL	ARS1-B10-01953	0.8601763							1.4103		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01953-03	ASP-A-009	0.039593	TH-230	0.0276628	0.028386198	0.02807367	pCi	0.008233	g	ARS-031	MBL	ARS1-B10-01953	0.8601763							1.4103		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01953-03	ASP-A-009	0.004228	TH-232	0.0109616	0.023628398	0.010973462	pCi	0.005866	g	ARS-031	MBL	ARS1-B10-01953	0.8601763	U									n				MBL	MB<MDA
ARS1-B10-01953-03	ASP-A-009	0.004228	TH-232	0.0109616	0.023628398	0.010973462	pCi	0.005866	g	ARS-031	MBL	ARS1-B10-01953	0.8601763	U									n				MBL	MB<MDA
ARS1-B10-01954-01	ASP-A-009	5.224671	TH-230	0.2604891	0.018200234	0.683075098	pCi	0.004521	g	ARS-031	LCS	ARS1-B10-01954	1.130563		75	90.77	5.750892	125		0.77					91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01954-02	ASP-A-009	6.289442	TH-230	0.3268393	0.033453671	0.827432383	pCi	0.010745	g	ARS-031	LCSD	ARS1-B10-01954	0.8412762		75	90.77	5.752023	125	18.593	0.65	0.99				109	18.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0) MARLAP	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01954-03	ASP-A-009	0.015455	TH-228	0.0266122	0.047130376	0.026677633	pCi	0.018545	g	ARS-031	MBL	ARS1-B10-01954	1.012241	U									n			MBL	MB<MDA
ARS1-B10-01954-03	ASP-A-009	0.035667	TH-230	0.0260107	0.0320004	0.026365522	pCi	0.011012	g	ARS-031	MBL	ARS1-B10-01954	1.012241							1.3528		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-01954-03	ASP-A-009	-0.00422	TH-232	0.0101258	0.03133082	0.010138671	pCi	0.010687	g	ARS-031	MBL	ARS1-B10-01954	1.012241	U									n			MBL	MB<MDA
ARS1-B10-02002-01	ASP-A-009	5.156363	TH-230	0.2707465	0.015132663	0.679472345	pCi	0.002553	g	ARS-031	LCS	ARS1-B10-02002	1.0177156		75	89.91	5.739012	125		0.86				90		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02002-01	ASP-A-009	5.156363	TH-230	0.2707465	0.015132663	0.679472345	pCi	0.002553	g	ARS-031	LCS	ARS1-B10-02002	1.0177156		75	89.91	5.739012	125		0.86				90		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02002-01	ASP-A-009	5.156363	TH-230	0.2707465	0.015132663	0.679472345	pCi	0.002553	g	ARS-031	LCS	ARS1-B10-02002	1.0177156		75	89.91	5.739012	125		0.86				90		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02002-02	ASP-A-009	5.028626	TH-230	0.2739266	0.031239536	0.666641324	pCi	0.010367	g	ARS-031	LCSD	ARS1-B10-02002	0.9956791		75	89.91	5.731658	125	2.5515	1.05	0.13			88	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02002-02	ASP-A-009	5.028626	TH-230	0.2739266	0.031239536	0.666641324	pCi	0.010367	g	ARS-031	LCSD	ARS1-B10-02002	0.9956791		75	89.91	5.731658	125	2.5515	1.05	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02002-02	ASP-A-009	5.028626	TH-230	0.2739266	0.031239536	0.666641324	pCi	0.010367	g	ARS-031	LCSD	ARS1-B10-02002	0.9956791		75	89.91	5.731658	125	2.5515	1.05	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02002-03	ASP-A-009	0.108038	TH-228	0.2498539	0.46374849	0.250194845	pCi	0.182597	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	0.108038	TH-228	0.2498539	0.46374849	0.250194845	pCi	0.182597	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	0.108038	TH-228	0.2498539	0.46374849	0.250194845	pCi	0.182597	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	0.10617	TH-230	0.149875	0.245470806	0.150423304	pCi	0.073792	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	0.10617	TH-230	0.149875	0.245470806	0.150423304	pCi	0.073792	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	0.10617	TH-230	0.149875	0.245470806	0.150423304	pCi	0.073792	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	-0.00325	TH-232	0.0533445	0.194062368	0.053345995	pCi	0.048186	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	-0.00325	TH-232	0.0533445	0.194062368	0.053345995	pCi	0.048186	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02002-03	ASP-A-009	-0.00325	TH-232	0.0533445	0.194062368	0.053345995	pCi	0.048186	g	ARS-031	MBL	ARS1-B10-02002	0.0996914	U									n			MBL	MB<MDA
ARS1-B10-02013-01	ASP-A-009	5.774067	TH-230	0.312824	0.028597752	0.764763116	pCi	0.008327	g	ARS-031	LCS	ARS1-B10-02013	0.8373601		75	100.6	5.736183	125		0.05				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02013-01	ASP-A-009	5.774067	TH-230	0.312824	0.028597752	0.764763116	pCi	0.008327	g	ARS-031	LCS	ARS1-B10-02013	0.8373601		75	100.6	5.736183	125		0.05				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02013-01	ASP-A-009	5.774067	TH-230	0.312824	0.028597752	0.764763116	pCi	0.008327	g	ARS-031	LCS	ARS1-B10-02013	0.8373601		75	100.6	5.736183	125		0.05				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02013-02	ASP-A-009	5.582322	TH-230	0.3063122	0.035164144	0.740960987	pCi	0.011666	g	ARS-031	LCSD	ARS1-B10-02013	0.8751723		75	100.6	5.729961	125	3.348	0.20	0.18			97	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02013-02	ASP-A-009	5.582322	TH-230	0.3063122	0.035164144	0.740960987	pCi	0.011666	g	ARS-031	LCSD	ARS1-B10-02013	0.8751723		75	100.6	5.729961	125	3.348	0.20	0.00			97	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02013-02	ASP-A-009	5.582322	TH-230	0.3063122	0.035164144	0.740960987	pCi	0.011666	g	ARS-031	LCSD	ARS1-B10-02013	0.8751723		75	100.6	5.729961	125	3.348	0.20	0.00			97	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02013-03	ASP-A-009	0.018806	TH-228	0.0308754	0.05428703	0.030958949	pCi	0.020947	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.018806	TH-228	0.0308754	0.05428703	0.030958949	pCi	0.020947	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.018806	TH-228	0.0308754	0.05428703	0.030958949	pCi	0.020947	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.031213	TH-230	0.0260287	0.031660249	0.026300649	pCi	0.009676	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.031213	TH-230	0.0260287	0.031660249	0.026300649	pCi	0.009676	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.031213	TH-230	0.0260287	0.031660249	0.026300649	pCi	0.009676	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.004759	TH-232	0.0138508	0.029806765	0.013862779	pCi	0.008762	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.004759	TH-232	0.0138508	0.029806765	0.013862779	pCi	0.008762	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02013-03	ASP-A-009	0.004759	TH-232	0.0138508	0.029806765	0.013862779	pCi	0.008762	g	ARS-031	MBL	ARS1-B10-02013	0.8839941	U									n			MBL	MB<MDA
ARS1-B10-02030-01	ASP-A-009	0.05521	TH-230	0.0277172	0.024347422	0.028509112	pCi	0.00782	g	ARS-031	LCS	ARS1-B10-02030	1.1559243													LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02030-01	ASP-A-009	0.05521	TH-230	0.0277172	0.024347422	0.028509112	pCi	0.00782	g	ARS-031	LCS	ARS1-B10-02030	1.1559243													LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02030-01	ASP-A-009	0.05521	TH-230	0.0277172	0.024347422	0.028509112	pCi	0.00782	g	ARS-031	LCS	ARS1-B10-02030	1.1559243													LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02030-02	ASP-A-009	0.045669	TH-230	0.0318593	0.038161202	0.032333863	pCi	0.013132	g	ARS-031	LCSD	ARS1-B10-02030	0.8488233							1.41	0.22			####	18.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02030-02	ASP-A-009	0.045669	TH-230	0.0318593	0.038161202	0.032333863	pCi	0.013132	g	ARS-031	LCSD	ARS1-B10-02030	0.8488233							1.41	0.00			####	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02030-02	ASP-A-009	0.045669	TH-230	0.0318593	0.038161202	0.032333863	pCi	0.013132	g	ARS-031	LCSD	ARS1-B10-02030	0.8488233							1.41	0.00			####	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02030-03	ASP-A-009	0.029957	TH-228	0.0280051	0.041399153	0.028238182	pCi	0.015461	g	ARS-031	MBL	ARS1-B10-02030	0.9809314	U									n			MBL	MB<MDA
ARS1-B10-02030-03	ASP-A-009	0.029957	TH-228	0.0280051	0.041399153	0.028238182	pCi	0.015461	g	ARS-031	MBL	ARS1-B10-02030	0.9809314	U									n			MBL	MB<MDA
ARS1-B10-02030-03	ASP-A-009	0.029957	TH-228	0.0280051	0.041399153	0.028238182	pCi	0.015461	g	ARS-031	MBL	ARS1-B10-02030	0.9809314	U									n			MBL	MB<MDA
ARS1-B10-02030-03	ASP-A-009	0.03246	TH-230	0.0221058	0.015700128	0.022451206	pCi	0.002648	g	ARS-031	MBL	ARS1-B10-02030	0.9809314							1.4458		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02030-03	ASP-A-009	0.03246	TH-230	0.0221058	0.015700128	0.022451206	pCi	0.002648	g	ARS-031	MBL	ARS1-B10-02030	0.9809314							1.4458		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02030-03	ASP-A-009	0.03246	TH-230	0.0221058	0.015700128	0.022451206	pCi	0.002648	g	ARS-031	MBL	ARS1-B10-02030	0.9809314							1.4458		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02030-03	ASP-A-009	0.007662	TH-232	0.0106195	0.010382524	0.010659819	pCi	0	g	ARS-031	MBL	ARS1-B10-02030	0.9809314	U									n			MBL	MB<MDA
ARS1-B10-02030-03	ASP-A-009	0.007662	TH-232	0.0106195	0.010382524	0.010659819	pCi	0	g	ARS-031	MBL	ARS1-B10-02030	0.9809314	U									n			MBL	MB<MDA
ARS1-B10-02030-03	ASP-A-009	0.007662	TH-232	0.0106195	0.010382524	0.010659819	pCi	0	g	ARS-031	MBL	ARS1-B10-02030	0.9809314	U									n			MBL	MB<MDA
ARS1-B10-02051-01	ASP-A-009	7.050885	TH-230	1.2782526	0.323108745	1.5362712	pCi	0.080275	g	ARS-031	LCS	ARS1-B10-02051	0.0625992		75	122.7	5.785964	125		0.82				122		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02051-02	ASP-A-009	6.140658	TH-230	0.3573232	0.029133808	0.82370241	pCi	0.007237	g	ARS-031	LCSD	ARS1-B10-02051	0.7062761		75	122.7	5.718646	125	13.798	0.51	0.52			107	13.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02051-03	ASP-A-009	0.006961	TH-228	0.0343517	0.068362029	0.034361974	pCi	0.02706	g	ARS-031	MBL	ARS1-B10-02051	0.7115745	U									n			MBL	MB<MDA
ARS1-B10-02051-03	ASP-A-009	0.48992	TH-230	0.1002589	0.039551413	0.116438419	pCi	0.012704	g	ARS-031	MBL	ARS1-B10-02051	0.7115745							4.2075		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02051-03	ASP-A-009	0.024673	TH-232	0.0242244	0.030314576	0.024407213	pCi	0.0081	g	ARS-031	MBL	ARS1-B10-02051	0.7115745	U									n			MBL	MB<MDA
ARS1-B10-02072-01	ASP-A-009	5.271354	TH-230	0.2844699	0.021514447	0.697723076	pCi	0.005345	g	ARS-031	LCS	ARS1-B10-02072	0.9401288		75	91.36	5.768428	125		0.71				91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02072-01	ASP-A-009	5.271354	TH-230	0.2844699	0.021514447	0.697723076	pCi	0.005345	g	ARS-031	LCS	ARS1-B10-02072	0.9401288		75	91.36	5.768428	125		0.71				91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02072-01	ASP-A-009	5.271354	TH-230	0.2844699	0.021514447	0.697723076	pCi	0.005345	g	ARS-031	LCS	ARS1-B10-02072	0.9401288		75	91.36	5.768428	125		0.71				91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02072-01	ASP-A-009	5.271354	TH-230	0.2844699	0.021514447	0.697723076	pCi	0.005345	g	ARS-031	LCS	ARS1-B10-02072	0.9401288		75	91.36	5.768428	125		0.71				91		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02072-02	ASP-A-009	4.358245	TH-230	0.3565056	0.040837984	0.636043204	pCi	0.010145	g	ARS-031	LCSD	ARS1-B10-02072	0.5038571		75	91.36	5.747497	125	18.899	2.18	0.97			76	19.0	LCSD	LCSD:Z-Score (normalized dif.) > 1.98, <3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02072-02	ASP-A-009	4.358245	TH-230	0.3565056	0.040837984	0.636043204	pCi	0.010145	g	ARS-031	LCSD	ARS1-B10-02072	0.5038571		75	91.36	5.747497	125	18.899	2.18	0.00			76	0.0	LCSD	LCSD:Z-Score (normalized dif.) > 1.98, <3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02072-02	ASP-A-009	4.358245	TH-230	0.3565056	0.040837984	0.636043204	pCi	0.010145	g	ARS-031	LCSD	ARS1-B10-02072	0.5038571		75	91.36	5.747497	125	18.899	2.18	0.00			76	0.0	LCSD	LCSD:Z-Score (normalized dif.) > 1.98, <3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02072-02	ASP-A-009	4.358245	TH-230	0.3565056	0.040837984	0.636043204	pCi	0.010145	g	ARS-031	LCSD	ARS1-B10-02072	0.5038571		75	91.36	5.747497	125	18.899	2.18	0.00			76	0.0	LCSD	LCSD:Z-Score (normalized dif.) > 1.98, <3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02072-03	ASP-A-009	0.012057	TH-228	0.0249045	0.04540452	0.024947073	pCi	0.017972	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02072-03	ASP-A-009	0.012057	TH-228	0.0249045	0.04540452	0.024947073	pCi	0.017972	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02072-03	ASP-A-009	0.012057	TH-228	0.0249045	0.04540452	0.024947073	pCi	0.017972	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02072-03	ASP-A-009	0.012057	TH-228	0.0249045	0.04540452	0.024947073	pCi	0.017972	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02072-03	ASP-A-009	0.307357	TH-230	0.0648347	0.026327435	0.074722551	pCi	0.008456	g	ARS-031	MBL	ARS1-B10-02072	1.0689904							4.1133		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02072-03	ASP-A-009	0.307357	TH-230	0.0648347	0.026327435	0.074722551	pCi	0.008456	g	ARS-031	MBL	ARS1-B10-02072	1.0689904							4.1133		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02072-03	ASP-A-009	0.307357	TH-230	0.0648347	0.026327435	0.074722551	pCi	0.008456	g	ARS-031	MBL	ARS1-B10-02072	1.0689904							4.1133		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02072-03	ASP-A-009	0.307357	TH-230	0.0648347	0.026327435	0.074722551	pCi	0.008456	g	ARS-031	MBL	ARS1-B10-02072	1.0689904							4.1133		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02072-03	ASP-A-009	0.010003	TH-232	0.0132101	0.020178927	0.013265275	pCi	0.005391	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02072-03	ASP-A-009	0.010003	TH-232	0.0132101	0.020178927	0.013265275	pCi	0.005391	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02072-03	ASP-A-009	0.010003	TH-232	0.0132101	0.020178927	0.013265275	pCi	0.005391	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02072-03	ASP-A-009	0.010003	TH-232	0.0132101	0.020178927	0.013265275	pCi	0.005391	g	ARS-031	MBL	ARS1-B10-02072	1.0689904	U									n			MBL	MB<MDA
ARS1-B10-02075-01	ASP-A-009	7.904207	TH-230	0.4017318	0.02861662	1.03633897	pCi	0.00711	g	ARS-031	LCS	ARS1-B10-02075	0.7068044		75	123.4	5.752588	125		2.08				137		LCS	LCS:Z-Score (normalized dif.) > 1.98 ,< 3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02075-02	ASP-A-009	7.147299	TH-230	0.3746435	0.027518944	0.941569503	pCi	0.006836	g	ARS-031	LCSD	ARS1-B10-02075	0.7477217		75	123.4	5.752588	125	9.9668	1.48	0.54			124	10.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02075-03	ASP-A-009	0.016311	TH-228	0.0379097	0.070278583	0.037960897	pCi	0.027818	g	ARS-031	MBL	ARS1-B10-02075	0.6911487	U									n			MBL	MB<MDA
ARS1-B10-02075-03	ASP-A-009	0.516831	TH-230	0.1044576	0.040720289	0.121709518	pCi	0.013079	g	ARS-031	MBL	ARS1-B10-02075	0.6911487							4.2464		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02075-03	ASP-A-009	0.028881	TH-232	0.0263382	0.031210474	0.026568524	pCi	0.008339	g	ARS-031	MBL	ARS1-B10-02075	0.6911487	U									n			MBL	MB<MDA
ARS1-B10-02087-01	ASP-A-009	4.553315	TH-230	0.2562979	0.020217283	0.607071818	pCi	0.005023	g	ARS-031	LCS	ARS1-B10-02087	1.0004486		75	79.37	5.732789	125		1.94				79		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02087-01	ASP-A-009	4.553315	TH-230	0.2562979	0.020217283	0.607071818	pCi	0.005023	g	ARS-031	LCS	ARS1-B10-02087	1.0004486		75	79.37	5.732789	125		1.94				79		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02087-01	ASP-A-009	4.553315	TH-230	0.2562979	0.020217283	0.607071818	pCi	0.005023	g	ARS-031	LCS	ARS1-B10-02087	1.0004486		75	79.37	5.732789	125		1.94				79		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02087-02	ASP-A-009	6.579886	TH-230	0.355816	0.026962292	0.871220313	pCi	0.006698	g	ARS-031	LCSD	ARS1-B10-02087	0.7631588		75	79.37	5.757114	125	36.478	0.94	1.91			114	36.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02087-02	ASP-A-009	6.579886	TH-230	0.355816	0.026962292	0.871220313	pCi	0.006698	g	ARS-031	LCSD	ARS1-B10-02087	0.7631588		75	79.37	5.757114	125	36.478	0.94	0.00			114	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02087-02	ASP-A-009	6.579886	TH-230	0.355816	0.026962292	0.871220313	pCi	0.006698	g	ARS-031	LCSD	ARS1-B10-02087	0.7631588		75	79.37	5.757114	125	36.478	0.94	0.00			114	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	ChemRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > ACT	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-02087-03	ASP-A-009	0.001063	TH-228	0.0248713	0.052034437	0.02487165	pCi	0.020597	g	ARS-031	MBL	ARS1-B10-02087	0.934026	U										n			MBL	MB<MDA
ARS1-B10-02087-03	ASP-A-009	0.001063	TH-228	0.0248713	0.052034437	0.02487165	pCi	0.020597	g	ARS-031	MBL	ARS1-B10-02087	0.934026	U										n			MBL	MB<MDA
ARS1-B10-02087-03	ASP-A-009	0.001063	TH-228	0.0248713	0.052034437	0.02487165	pCi	0.020597	g	ARS-031	MBL	ARS1-B10-02087	0.934026	U										n			MBL	MB<MDA
ARS1-B10-02087-03	ASP-A-009	0.169412	TH-230	0.0521601	0.030131683	0.056034855	pCi	0.009678	g	ARS-031	MBL	ARS1-B10-02087	0.934026							3.0233		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02087-03	ASP-A-009	0.169412	TH-230	0.0521601	0.030131683	0.056034855	pCi	0.009678	g	ARS-031	MBL	ARS1-B10-02087	0.934026							3.0233		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02087-03	ASP-A-009	0.169412	TH-230	0.0521601	0.030131683	0.056034855	pCi	0.009678	g	ARS-031	MBL	ARS1-B10-02087	0.934026							3.0233		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02087-03	ASP-A-009	0.005499	TH-232	0.011742	0.023094731	0.011760837	pCi	0.006171	g	ARS-031	MBL	ARS1-B10-02087	0.934026	U										n			MBL	MB<MDA
ARS1-B10-02087-03	ASP-A-009	0.005499	TH-232	0.011742	0.023094731	0.011760837	pCi	0.006171	g	ARS-031	MBL	ARS1-B10-02087	0.934026	U										n			MBL	MB<MDA
ARS1-B10-02087-03	ASP-A-009	0.005499	TH-232	0.011742	0.023094731	0.011760837	pCi	0.006171	g	ARS-031	MBL	ARS1-B10-02087	0.934026	U										n			MBL	MB<MDA
ARS1-B10-02094-01	ASP-A-009	5.851963	TH-230	0.3085121	0.022791757	0.771629543	pCi	0.005662	g	ARS-031	LCS	ARS1-B10-02094	0.9028049		75	102	5.73788	125		0.15					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02094-02	ASP-A-009	6.006485	TH-230	0.3366172	0.037147614	0.800193604	pCi	0.011932	g	ARS-031	LCSD	ARS1-B10-02094	0.75762		75	102	5.737314	125	2.6981	0.34	0.14				105	2.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02094-03	ASP-A-009	0.00467	TH-228	0.0268172	0.054081871	0.02682312	pCi	0.02128	g	ARS-031	MBL	ARS1-B10-02094	0.8821289	U									n				MBL	MB<MDA
ARS1-B10-02094-03	ASP-A-009	0.033096	TH-230	0.0276364	0.03672039	0.027924337	pCi	0.012636	g	ARS-031	MBL	ARS1-B10-02094	0.8821289	U									n				MBL	MB<MDA
ARS1-B10-02094-03	ASP-A-009	0.00166	TH-232	0.0155046	0.035952049	0.01550586	pCi	0.012264	g	ARS-031	MBL	ARS1-B10-02094	0.8821289	U									n				MBL	MB<MDA
ARS1-B10-02114-01	ASP-A-009	5.381236	TH-230	0.299595	0.03181989	0.716065502	pCi	0.010036	g	ARS-031	LCS	ARS1-B10-02114	0.8664441		75	92.9	5.791055	125		0.57					93		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02114-02	ASP-A-009	6.329006	TH-230	0.3425535	0.03537212	0.838126365	pCi	0.011156	g	ARS-031	LCSD	ARS1-B10-02114	0.7780523		75	92.9	5.787095	125	16.225	0.65	0.86				109	16.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02114-03	ASP-A-009	0.004488	TH-228	0.039815	0.079942151	0.039818697	pCi	0.032383	g	ARS-031	MBL	ARS1-B10-02114	0.7160878	U									n				MBL	MB<MDA
ARS1-B10-02114-03	ASP-A-009	0.607215	TH-230	0.1152801	0.04481404	0.136657725	pCi	0.01487	g	ARS-031	MBL	ARS1-B10-02114	0.7160878							4.4433		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02114-03	ASP-A-009	0.014644	TH-232	0.0233834	0.040748032	0.02345031	pCi	0.012852	g	ARS-031	MBL	ARS1-B10-02114	0.7160878	U									n				MBL	MB<MDA
ARS1-B10-02129-01	ASP-A-009	5.954527	TH-230	0.3298098	0.038206234	0.791640789	pCi	0.012673	g	ARS-031	LCS	ARS1-B10-02129	0.7684174		75	102.8	5.789358	125		0.21					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02129-01	ASP-A-009	5.954527	TH-230	0.3298098	0.038206234	0.791640789	pCi	0.012673	g	ARS-031	LCS	ARS1-B10-02129	0.7684174		75	102.8	5.789358	125		0.21					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02129-02	ASP-A-009	6.640023	TH-230	0.3606677	0.033045443	0.879837338	pCi	0.00962	g	ARS-031	LCSD	ARS1-B10-02129	0.7461955		75	102.8	5.790489	125	10.961	0.97	0.58				115	10.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02129-02	ASP-A-009	6.640023	TH-230	0.3606677	0.033045443	0.879837338	pCi	0.00962	g	ARS-031	LCSD	ARS1-B10-02129	0.7461955		75	102.8	5.790489	125	10.961	0.97	0.00				115	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02129-03	ASP-A-009	0.018336	TH-228	0.035541	0.064250103	0.035610011	pCi	0.025283	g	ARS-031	MBL	ARS1-B10-02129	0.7490738	U									n				MBL	MB<MDA
ARS1-B10-02129-03	ASP-A-009	0.018336	TH-228	0.035541	0.064250103	0.035610011	pCi	0.025283	g	ARS-031	MBL	ARS1-B10-02129	0.7490738	U									n				MBL	MB<MDA
ARS1-B10-02129-03	ASP-A-009	0.331715	TH-230	0.0803232	0.027001816	0.08977264	pCi	0.006709	g	ARS-031	MBL	ARS1-B10-02129	0.7490738							3.6951		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02129-03	ASP-A-009	0.331715	TH-230	0.0803232	0.027001816	0.08977264	pCi	0.006709	g	ARS-031	MBL	ARS1-B10-02129	0.7490738							3.6951		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02129-03	ASP-A-009	0.024739	TH-232	0.0239512	0.030191795	0.024137077	pCi	0.008317	g	ARS-031	MBL	ARS1-B10-02129	0.7490738	U									n				MBL	MB<MDA
ARS1-B10-02129-03	ASP-A-009	0.024739	TH-232	0.0239512	0.030191795	0.024137077	pCi	0.008317	g	ARS-031	MBL	ARS1-B10-02129	0.7490738	U									n				MBL	MB<MDA
ARS1-B10-02134-01	ASP-A-009	6.220749	TH-230	0.343058	0.039605554	0.826411713	pCi	0.013144	g	ARS-031	LCS	ARS1-B10-02134	0.7853584		75	107.5	5.784832	125		0.53					108		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02134-01	ASP-A-009	6.220749	TH-230	0.343058	0.039605554	0.826411713	pCi	0.013144	g	ARS-031	LCS	ARS1-B10-02134	0.7853584		75	107.5	5.784832	125		0.53					108		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02134-02	ASP-A-009	5.937123	TH-230	0.2479006	0.018298222	0.759178585	pCi	0.005501	g	ARS-031	LCSD	ARS1-B10-02134	1.3373609		75	107.5	5.763901	125	8.6154	0.23	0.25				103	4.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02134-02	ASP-A-009	5.937123	TH-230	0.2479006	0.018298222	0.759178585	pCi	0.005501	g	ARS-031	LCSD	ARS1-B10-02134	1.3373609		75	107.5	5.763901	125	8.6154	0.23	0.00				103	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02134-03	ASP-A-009	0.005733	TH-228	0.0217275	0.044280864	0.021738567	pCi	0.016299	g	ARS-031	MBL	ARS1-B10-02134	0.8775859	U									n				MBL	MB<MDA
ARS1-B10-02134-03	ASP-A-009	0.005733	TH-228	0.0217275	0.044280864	0.021738567	pCi	0.016299	g	ARS-031	MBL	ARS1-B10-02134	0.8775859	U									n				MBL	MB<MDA
ARS1-B10-02134-03	ASP-A-009	0.304149	TH-230	0.0716945	0.031415906	0.080569002	pCi	0.009909	g	ARS-031	MBL	ARS1-B10-02134	0.8775859							3.775		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02134-03	ASP-A-009	0.304149	TH-230	0.0716945	0.031415906	0.080569002	pCi	0.009909	g	ARS-031	MBL	ARS1-B10-02134	0.8775859							3.775		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02134-03	ASP-A-009	0.013206	TH-232	0.0175855	0.027723788	0.017657832	pCi	0.008074	g	ARS-031	MBL	ARS1-B10-02134	0.8775859	U									n				MBL	MB<MDA
ARS1-B10-02134-03	ASP-A-009	0.013206	TH-232	0.0175855	0.027723788	0.017657832	pCi	0.008074	g	ARS-031	MBL	ARS1-B10-02134	0.8775859	U									n				MBL	MB<MDA
ARS1-B10-02157-01	ASP-A-009	6.557872	TH-230	0.3908024	0.048705489	0.883697686	pCi	0.016158	g	ARS-031	LCS	ARS1-B10-02157	0.6318525		75	113.9	5.760507	125		0.90					114		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02157-01	ASP-A-009	6.557872	TH-230	0.3908024	0.048705489	0.883697686	pCi	0.016158	g	ARS-031	LCS	ARS1-B10-02157	0.6318525		75	113.9	5.760507	125		0.90					114		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02157-01	ASP-A-009	6.557872	TH-230	0.3908024	0.048705489	0.883697686	pCi	0.016158	g	ARS-031	LCS	ARS1-B10-02157	0.6318525		75	113.9	5.760507	125		0.90					114		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02157-02	ASP-A-009	6.084215	TH-230	0.3727082	0.0413634	0.82440158	pCi	0.012642	g	ARS-031	LCSD	ARS1-B10-02157	0.6766241		75	113.9	5.75881	125	7.5949	0.39	0.39				106	7.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02157-02	ASP-A-009	6.084215	TH-230	0.3727082	0.0413634	0.82440158	pCi	0.012642	g	ARS-031	LCSD	ARS1-B10-02157	0.6766241		75	113.9	5.75881	125	7.5949	0.39	0.00				106	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02157-02	ASP-A-009	6.084215	TH-230	0.3727082	0.0413634	0.82440158	pCi	0.012642	g	ARS-031	LCSD	ARS1-B10-02157	0.6766241		75	113.9	5.75881	125	7.5949	0.39	0.00				106	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02157-03	ASP-A-009	0.002092	TH-228	0.0288259	0.061950241	0.028827042	pCi	0.023543	g	ARS-031	MBL	ARS1-B10-02157	0.6699637	U									n				MBL	MB<MDA
ARS1-B10-02157-03	ASP-A-009	0.002092	TH-228	0.0288259	0.061950241	0.028827042	pCi	0.023543	g	ARS-031	MBL	ARS1-B10-02157	0.6699637	U									n				MBL	MB<MDA
ARS1-B10-02157-03	ASP-A-009	0.002092	TH-228	0.0288259	0.061950241	0.028827042	pCi	0.023543	g	ARS-031	MBL	ARS1-B10-02157	0.6699637	U									n				MBL	MB<MDA
ARS1-B10-02157-03	ASP-A-009	0.12075	TH-230	0.0531471	0.043820785	0.055114399	pCi	0.014536	g	ARS-031	MBL	ARS1-B10-02157	0.6699637							2.1909		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02157-03	ASP-A-009	0.12075	TH-230	0.0531471	0.043820785	0.055114399	pCi	0.014536	g	ARS-031	MBL	ARS1-B10-02157	0.6699637							2.1909		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02157-03	ASP-A-009	0.12075	TH-230	0.0531471	0.043820785	0.055114399	pCi	0.014536	g	ARS-031	MBL	ARS1-B10-02157	0.6699637							2.1909		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02157-03	ASP-A-009	0.019264	TH-232	0.0218324	0.029226472	0.021956208	pCi	0.007253	g	ARS-031	MBL	ARS1-B10-02157	0.6699637	U									n				MBL	MB<MDA
ARS1-B10-02157-03	ASP-A-009	0.019264	TH-232	0.0218324	0.029226472	0.021956208	pCi	0.007253	g	ARS-031	MBL	ARS1-B10-02157	0.6699637	U									n				MBL	MB<MDA
ARS1-B10-02157-03	ASP-A-009	0.019264	TH-232	0.0218324	0.029226472	0.021956208	pCi	0.007253	g	ARS-031	MBL	ARS1-B10-02157	0.6699637	U									n				MBL	MB<MDA
ARS1-B10-02169-01	ASP-A-009	3.804062	TH-230	0.2152348	0.027480692	0.507647486	pCi	0.009457	g	ARS-031	LCS	ARS1-B10-02169	1.1787228		75	75.85	5.761638	125		3.86					66		LCS	LCS:Z-Score (normalized dif.) > 3.00 -differ significantly when compared to their respective CSU
ARS1-B10-02169-01	ASP-A-009	3.804062	TH-230	0.2152348	0.027480692	0.507647486	pCi	0.009457	g	ARS-031	LCS	ARS1-B10-02169	1.1787228		75	75.85	5.761638	125		3.86					66		LCS	LCS:Z-Score (normalized dif.) > 3.00 -differ significantly when compared to their respective CSU
ARS1-B10-02169-02	ASP-A-009	4.367075	TH-230	0.2327301	0.013202186	0.576839092	pCi	0.002227	g	ARS-031	LCSD	ARS1-B10-02169	1.1665302		75	75.85	5.761638	125	13.953	2.42	0.73				76	13.8	LCSD	LCSD:Z-Score (normalized dif.) > 1.98, <3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02169-02	ASP-A-009	4.367075	TH-230	0.2327301	0.013202186	0.576839092	pCi	0.002227	g	ARS-031	LCSD	ARS1-B10-02169	1.1665302		75	75.85	5.761638	125	13.953	2.42	0.00				76	0.0	LCSD	LCSD:Z-Score (normalized dif.) > 1.98, <3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02169-03	ASP-A-009	0.043021	TH-228	0.0361082	0.05017229	0.036480611	pCi	0.018291	g	ARS-031	MBL	ARS1-B10-02169	0.7765172	U									n				MBL	MB<MDA
ARS1-B10-02169-03	ASP-A-009	0.043021	TH-228	0.0361082	0.05017229	0.036480611	pCi	0.018291	g	ARS-031	MBL	ARS1-B10-02169	0.7765172	U									n				MBL	MB<MDA
ARS1-B10-02169-03	ASP-A-009	1.468669	TH-230	0.1682084	0.040056489	0.244543982	pCi	0.013293	g	ARS-031	MBL	ARS1-B10-02169	0.7765172							6.0057		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02169-03	ASP-A-009	1.468669	TH-230	0.1682084	0.040056489	0.244543982	pCi	0.013293	g	ARS-031	MBL	ARS1-B10-02169	0.7765172							6.0057		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02169-03	ASP-A-009	0.034933	TH-232	0.0297329	0.038246629	0.03003113	pCi	0.012402	g	ARS-031	MBL	ARS1-B10-02169	0.7765172	U									n				MBL	MB<MDA
ARS1-B10-02169-03	ASP-A-009	0.034933	TH-232	0.0297329	0.038246629	0.03003113	pCi	0.012402	g	ARS-031	MBL	ARS1-B10-02169	0.7765172	U									n				MBL	MB<MDA
ARS1-B10-02184-01	ASP-A-009	6.345804	TH-230	0.3509966	0.032581129	0.843458064	pCi	0.00945	g	ARS-031	LCS	ARS1-B10-02184	0.7494257		75	110	5.773518	125		0.68					110		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02184-02	ASP-A-009	6.690288	TH-230	0.3538529	0.031581645	0.882627922	pCi	0.009196	g	ARS-031	LCSD	ARS1-B10-02184	0.7582447		75	110	5.772386	125	5.2147	1.04	0.28				116	5.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02184-03	ASP-A-009	0.020212	TH-228	0.0300973	0.0516861	0.030196266	pCi	0.018681	g	ARS-031	MBL	ARS1-B10-02184	0.7282758	U									n				MBL	MB<MDA
ARS1-B10-02184-03	ASP-A-009	0.814137	TH-230	0.1291866	0.042256914	0.162391962	pCi	0.014019	g	ARS-031	MBL	ARS1-B10-02184	0.7282758							5.0134		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02184-03	ASP-A-009	-0.0095	TH-232	0.0093127	0.042172396	0.009383283	pCi	0.013991	g	ARS-031	MBL	ARS1-B10-02184	0.7282758	U									n				MBL	MB<MDA
ARS1-B10-02185-01	ASP-A-009	5.532495	TH-230	0.3233744	0.020119177	0.742749788	pCi	0.003394	g	ARS-031	LCS	ARS1-B10-02185	0.765476		75	95.8	5.772387	125		0.32					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02185-02	ASP-A-009	6.107958	TH-230	0.3357608	0.038639674	0.810981217	pCi	0.012823	g	ARS-031	LCSD	ARS1-B10-02185	0.80499		75	95.8	5.775781	125	9.9656	0.41	0.52				106	9.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02185-03	ASP-A-009	0.027296	TH-228	0.0289733	0.045840774	0.029160543	pCi	0.018049	g	ARS-031	MBL	ARS1-B10-02185	1.0078279	U									n				MBL	MB<MDA
ARS1-B10-02185-03	ASP-A-009	0.367097	TH-230	0.0715146	0.024281256	0.0841595	pCi	0.007299	g	ARS-031	MBL	ARS1-B10-02185	1.0078279							4.3619		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02185-03	ASP-A-009	0.019776	TH-232	0.017411	0.019196083	0.017574331	pCi	0.004766	g	ARS-031	MBL	ARS1-B10-02185	1.0078279							1.1253		n	Y				MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02190-01	ASP-A-009	6.052888	TH-230	0.3219808	0.02400095	0.799277425	pCi	0.005962	g	ARS-031	LCS	ARS1-B10-02190	0.8573207		75	104.8	5.772952	125		0.35					105		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02190-02	ASP-A-009	5.423096	TH-230	0.2952067	0.03164664	0.718850502	pCi	0.010165	g	ARS-031	LCSD	ARS1-B10-02190	0.8893132		75	104.8	5.782003	125	10.985	0.50	0.59				94	11.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02190-03	ASP-A-009	0.044594	TH-228	0.0422012	0.064449537	0.042543984	pCi	0.02536	g	ARS-031	MBL	ARS1-B10-02190	0.7407107	U									n				MBL	MB<MDA
ARS1-B10-02190-03	ASP-A-009	0.345559	TH-230	0.0836652	0.043731133	0.093510063	pCi	0.015049	g	ARS-031	MBL	ARS1-B10-02190	0.7407107							3.6954		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02190-03	ASP-A-009	-0.00943	TH-232	0.0109981	0.042816097	0.011056951	pCi	0.014605	g	ARS-031	MBL	ARS1-B10-02190	0.7407107	U									n				MBL	MB<MDA
ARS1-B10-02204-01	ASP-A-009	6.176885	TH-230	0.3373833	0.03515648	0.819238293	pCi	0.011088	g	ARS-031	LCS	ARS1-B10-02204	0.7828246		75	106.9	5.77974	125		0.48					107		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02204-01	ASP-A-009	6.176885	TH-230	0.3373833	0.03515648	0.819238293	pCi	0.011088	g	ARS-031	LCS	ARS1-B10-02204	0.7828246		75	106.9	5.77974	125		0.48					107		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02204-02	ASP-A-009	6.658252	TH-230	0.3628326	0.041380669	0.88273498	pCi	0.013731	g	ARS-031	LCSD	ARS1-B10-02204	0.7755019		75	106.9	5.763901	125	7.4766	1.01	0.40				116	7.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02204-02	ASP-A-009	6.658252	TH-230	0.3628326	0.041380669	0.88273498	pCi	0.013731	g	ARS-031	LCSD	ARS1-B10-02204	0.7755019		75	106.9	5.763901	125	7.4766	1.01	0.00				116	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02204-03	ASP-A-009	0.020507	TH-228	0.0362898	0.064481722	0.036374307	pCi	0.025632	g	ARS-031	MBL	ARS1-B10-02204	0.7811915	U									n				MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MARLAP MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-02204-03	ASP-A-009	0.020507	TH-228	0.0362898	0.064481722	0.036374307	pCi	0.025632	g	ARS-031	MBL	ARS1-B10-02204	0.7811915	U									n			MBL	MB<MDA
ARS1-B10-02204-03	ASP-A-009	0.489293	TH-230	0.0960221	0.031256274	0.112771113	pCi	0.009066	g	ARS-031	MBL	ARS1-B10-02204	0.7811915							4.3388		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02204-03	ASP-A-009	0.489293	TH-230	0.0960221	0.031256274	0.112771113	pCi	0.009066	g	ARS-031	MBL	ARS1-B10-02204	0.7811915							4.3388		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02204-03	ASP-A-009	0.03164	TH-232	0.0254311	0.026017422	0.025717052	pCi	0.006459	g	ARS-031	MBL	ARS1-B10-02204	0.7811915							1.2303		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02204-03	ASP-A-009	0.03164	TH-232	0.0254311	0.026017422	0.025717052	pCi	0.006459	g	ARS-031	MBL	ARS1-B10-02204	0.7811915							1.2303		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02211-01	ASP-A-009	6.663772	TH-230	0.3677168	0.034226249	0.885360665	pCi	0.009964	g	ARS-031	LCS	ARS1-B10-02211	0.7204517		75	115.9	5.748061	125		1.03				116		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02211-02	ASP-A-009	6.311971	TH-230	0.331706	0.024430517	0.831863132	pCi	0.00607	g	ARS-031	LCSD	ARS1-B10-02211	0.8279134		75	115.9	5.616819	125	5.3971	0.84	0.29			112	5.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02211-03	ASP-A-009	0.005257	TH-228	0.0324974	0.065005555	0.032503562	pCi	0.025991	g	ARS-031	MBL	ARS1-B10-02211	0.8006753	U									n			MBL	MB<MDA
ARS1-B10-02211-03	ASP-A-009	0.39387	TH-230	0.0853092	0.025698946	0.097692039	pCi	0.006384	g	ARS-031	MBL	ARS1-B10-02211	0.8006753							4.0317		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02211-03	ASP-A-009	0.019805	TH-232	0.0190342	0.012905067	0.0191841	pCi	0	g	ARS-031	MBL	ARS1-B10-02211	0.8006753							1.0323		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02243-01	ASP-A-009	6.596918	TH-230	0.3821109	0.039100974	0.88414184	pCi	0.011754	g	ARS-031	LCS	ARS1-B10-02243	0.6258496		75	115.3	5.725433	125		0.99				115		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02243-01	ASP-A-009	6.596918	TH-230	0.3821109	0.039100974	0.88414184	pCi	0.011754	g	ARS-031	LCS	ARS1-B10-02243	0.6258496		75	115.3	5.725433	125		0.99				115		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02243-02	ASP-A-009	5.775389	TH-230	0.3152474	0.032829184	0.76590316	pCi	0.010354	g	ARS-031	LCSD	ARS1-B10-02243	0.8398063		75	115.3	5.726565	125	13.247	0.06	0.70			101	13.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02243-02	ASP-A-009	5.775389	TH-230	0.3152474	0.032829184	0.76590316	pCi	0.010354	g	ARS-031	LCSD	ARS1-B10-02243	0.8398063		75	115.3	5.726565	125	13.247	0.06	0.00			101	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02243-03	ASP-A-009	0.002246	TH-228	0.0269587	0.057856008	0.026960021	pCi	0.02192	g	ARS-031	MBL	ARS1-B10-02243	0.7302035	U									n			MBL	MB<MDA
ARS1-B10-02243-03	ASP-A-009	0.002246	TH-228	0.0269587	0.057856008	0.026960021	pCi	0.02192	g	ARS-031	MBL	ARS1-B10-02243	0.7302035	U									n			MBL	MB<MDA
ARS1-B10-02243-03	ASP-A-009	0.617511	TH-230	0.1112719	0.037689984	0.133983059	pCi	0.011887	g	ARS-031	MBL	ARS1-B10-02243	0.7302035							4.6089		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02243-03	ASP-A-009	0.617511	TH-230	0.1112719	0.037689984	0.133983059	pCi	0.011887	g	ARS-031	MBL	ARS1-B10-02243	0.7302035							4.6089		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02243-03	ASP-A-009	0.009815	TH-232	0.0161191	0.027586284	0.016162685	pCi	0.006849	g	ARS-031	MBL	ARS1-B10-02243	0.7302035	U									n			MBL	MB<MDA
ARS1-B10-02243-03	ASP-A-009	0.009815	TH-232	0.0161191	0.027586284	0.016162685	pCi	0.006849	g	ARS-031	MBL	ARS1-B10-02243	0.7302035	U									n			MBL	MB<MDA
ARS1-B10-02254-01	ASP-A-009	6.462646	TH-230	0.3542597	0.035193076	0.85766171	pCi	0.010756	g	ARS-031	LCS	ARS1-B10-02254	0.7952551		75	113.7	5.683006	125		0.91				114		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02254-01	ASP-A-009	6.462646	TH-230	0.3542597	0.035193076	0.85766171	pCi	0.010756	g	ARS-031	LCS	ARS1-B10-02254	0.7952551		75	113.7	5.683006	125		0.91				114		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02254-02	ASP-A-009	5.886387	TH-230	0.3259232	0.037743037	0.782534895	pCi	0.01252	g	ARS-031	LCSD	ARS1-B10-02254	0.7778478		75	113.7	5.733353	125	9.2308	0.20	0.50			103	9.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02254-02	ASP-A-009	5.886387	TH-230	0.3259232	0.037743037	0.782534895	pCi	0.01252	g	ARS-031	LCSD	ARS1-B10-02254	0.7778478		75	113.7	5.733353	125	9.2308	0.20	0.00			103	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02254-03	ASP-A-009	0.003113	TH-228	0.0289412	0.061715702	0.028943607	pCi	0.023303	g	ARS-031	MBL	ARS1-B10-02254	0.6872226	U									n			MBL	MB<MDA
ARS1-B10-02254-03	ASP-A-009	0.003113	TH-228	0.0289412	0.061715702	0.028943607	pCi	0.023303	g	ARS-031	MBL	ARS1-B10-02254	0.6872226	U									n			MBL	MB<MDA
ARS1-B10-02254-03	ASP-A-009	0.430322	TH-230	0.0964328	0.035881187	0.109563736	pCi	0.010445	g	ARS-031	MBL	ARS1-B10-02254	0.6872226							3.9276		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02254-03	ASP-A-009	0.430322	TH-230	0.0964328	0.035881187	0.109563736	pCi	0.010445	g	ARS-031	MBL	ARS1-B10-02254	0.6872226							3.9276		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02254-03	ASP-A-009	0.015219	TH-232	0.0235408	0.040495087	0.023612534	pCi	0.012767	g	ARS-031	MBL	ARS1-B10-02254	0.6872226	U									n			MBL	MB<MDA
ARS1-B10-02254-03	ASP-A-009	0.015219	TH-232	0.0235408	0.040495087	0.023612534	pCi	0.012767	g	ARS-031	MBL	ARS1-B10-02254	0.6872226	U									n			MBL	MB<MDA
ARS1-B10-02260-01	ASP-A-009	6.342743	TH-230	0.3467192	0.020174699	0.84134996	pCi	0.003403	g	ARS-031	LCS	ARS1-B10-02260	0.7633694		75	109.9	5.76786	125		0.68				110		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02260-01	ASP-A-009	6.342743	TH-230	0.3467192	0.020174699	0.84134996	pCi	0.003403	g	ARS-031	LCS	ARS1-B10-02260	0.7633694		75	109.9	5.76786	125		0.68				110		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02260-01	ASP-A-009	6.342743	TH-230	0.3467192	0.020174699	0.84134996	pCi	0.003403	g	ARS-031	LCS	ARS1-B10-02260	0.7633694		75	109.9	5.76786	125		0.68				110		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02260-02	ASP-A-009	6.518674	TH-230	0.3674542	0.043358122	0.869327554	pCi	0.014389	g	ARS-031	LCSD	ARS1-B10-02260	0.7173869		75	109.9	5.765597	125	2.7994	0.87	0.15			113	2.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02260-02	ASP-A-009	6.518674	TH-230	0.3674542	0.043358122	0.869327554	pCi	0.014389	g	ARS-031	LCSD	ARS1-B10-02260	0.7173869		75	109.9	5.765597	125	2.7994	0.87	0.00			113	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02260-02	ASP-A-009	6.518674	TH-230	0.3674542	0.043358122	0.869327554	pCi	0.014389	g	ARS-031	LCSD	ARS1-B10-02260	0.7173869		75	109.9	5.765597	125	2.7994	0.87	0.00			113	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02260-03	ASP-A-009	0.027338	TH-228	0.0334064	0.054914813	0.033569403	pCi	0.021622	g	ARS-031	MBL	ARS1-B10-02260	0.8395348	U									n			MBL	MB<MDA
ARS1-B10-02260-03	ASP-A-009	0.027338	TH-228	0.0334064	0.054914813	0.033569403	pCi	0.021622	g	ARS-031	MBL	ARS1-B10-02260	0.8395348	U									n			MBL	MB<MDA
ARS1-B10-02260-03	ASP-A-009	0.027338	TH-228	0.0334064	0.054914813	0.033569403	pCi	0.021622	g	ARS-031	MBL	ARS1-B10-02260	0.8395348	U									n			MBL	MB<MDA
ARS1-B10-02260-03	ASP-A-009	0.268722	TH-230	0.0673558	0.029148674	0.074777062	pCi	0.008763	g	ARS-031	MBL	ARS1-B10-02260	0.8395348							3.5936		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02260-03	ASP-A-009	0.268722	TH-230	0.0673558	0.029148674	0.074777062	pCi	0.008763	g	ARS-031	MBL	ARS1-B10-02260	0.8395348							3.5936		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02260-03	ASP-A-009	0.268722	TH-230	0.0673558	0.029148674	0.074777062	pCi	0.008763	g	ARS-031	MBL	ARS1-B10-02260	0.8395348							3.5936		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02260-03	ASP-A-009	0.014296	TH-232	0.0167801	0.02304413	0.016868796	pCi	0.005722	g	ARS-031	MBL	ARS1-B10-02260	0.8395348	U									n			MBL	MB<MDA
ARS1-B10-02260-03	ASP-A-009	0.014296	TH-232	0.0167801	0.02304413	0.016868796	pCi	0.005722	g	ARS-031	MBL	ARS1-B10-02260	0.8395348	U									n			MBL	MB<MDA
ARS1-B10-02260-03	ASP-A-009	0.014296	TH-232	0.0167801	0.02304413	0.016868796	pCi	0.005722	g	ARS-031	MBL	ARS1-B10-02260	0.8395348	U									n			MBL	MB<MDA
ARS1-B10-02286-01	ASP-A-009	6.729532	TH-230	0.3732331	0.034927528	0.8948832	pCi	0.01017	g	ARS-031	LCS	ARS1-B10-02286	0.6856087		75	116.7	5.767294	125		1.08				117		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02286-02	ASP-A-009	6.012771	TH-230	0.3354386	0.039147836	0.800388171	pCi	0.012987	g	ARS-031	LCSD	ARS1-B10-02286	0.7861146		75	116.7	5.77182	125	11.303	0.30	0.60			104	11.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02286-03	ASP-A-009	0.014047	TH-228	0.0301499	0.055702435	0.030197703	pCi	0.021493	g	ARS-031	MBL	ARS1-B10-02286	0.8634445	U									n			MBL	MB<MDA
ARS1-B10-02286-03	ASP-A-009	0.201461	TH-230	0.0611381	0.032413749	0.065808236	pCi	0.009907	g	ARS-031	MBL	ARS1-B10-02286	0.8634445							3.0613		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02286-03	ASP-A-009	0.011326	TH-232	0.0177804	0.03051615	0.017833039	pCi	0.00897	g	ARS-031	MBL	ARS1-B10-02286	0.8634445	U									n			MBL	MB<MDA
ARS1-B10-02302-01	ASP-A-009	7.701783	TH-230	0.390726	0.039045586	1.009520792	pCi	0.012541	g	ARS-031	LCS	ARS1-B10-02302	0.7207928		75	96.88	5.780305	125		1.90				133		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02302-01	ASP-A-009	7.701783	TH-230	0.390726	0.039045586	1.009520792	pCi	0.012541	g	ARS-031	LCS	ARS1-B10-02302	0.7207928		75	96.88	5.780305	125		1.90				133		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02302-01	ASP-A-009	7.701783	TH-230	0.390726	0.039045586	1.009520792	pCi	0.012541	g	ARS-031	LCS	ARS1-B10-02302	0.7207928		75	96.88	5.780305	125		1.90				133		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02302-02	ASP-A-009	5.636071	TH-230	0.3166599	0.040149177	0.751183935	pCi	0.013816	g	ARS-031	LCSD	ARS1-B10-02302	0.8067941		75	96.88	5.780305	125	30.885	0.19	1.64			98	31.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02302-02	ASP-A-009	5.636071	TH-230	0.3166599	0.040149177	0.751183935	pCi	0.013816	g	ARS-031	LCSD	ARS1-B10-02302	0.8067941		75	96.88	5.780305	125	30.885	0.19	0.00			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02302-02	ASP-A-009	5.636071	TH-230	0.3166599	0.040149177	0.751183935	pCi	0.013816	g	ARS-031	LCSD	ARS1-B10-02302	0.8067941		75	96.88	5.780305	125	30.885	0.19	0.00			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02302-03	ASP-A-009	-0.00525	TH-228	0.0212951	0.052846685	0.021304552	pCi	0.019736	g	ARS-031	MBL	ARS1-B10-02302	0.7700302	U									n			MBL	MB<MDA
ARS1-B10-02302-03	ASP-A-009	-0.00525	TH-228	0.0212951	0.052846685	0.021304552	pCi	0.019736	g	ARS-031	MBL	ARS1-B10-02302	0.7700302	U									n			MBL	MB<MDA
ARS1-B10-02302-03	ASP-A-009	-0.00525	TH-228	0.0212951	0.052846685	0.021304552	pCi	0.019736	g	ARS-031	MBL	ARS1-B10-02302	0.7700302	U									n			MBL	MB<MDA
ARS1-B10-02302-03	ASP-A-009	0.336287	TH-230	0.0795853	0.020000187	0.089362925	pCi	0.003374	g	ARS-031	MBL	ARS1-B10-02302	0.7700302							3.7632		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02302-03	ASP-A-009	0.336287	TH-230	0.0795853	0.020000187	0.089362925	pCi	0.003374	g	ARS-031	MBL	ARS1-B10-02302	0.7700302							3.7632		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02302-03	ASP-A-009	0.336287	TH-230	0.0795853	0.020000187	0.089362925	pCi	0.003374	g	ARS-031	MBL	ARS1-B10-02302	0.7700302							3.7632		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02302-03	ASP-A-009	0	TH-232	0.0095658	0.013226161	0.009565784	pCi	0	g	ARS-031	MBL	ARS1-B10-02302	0.7700302	U									n			MBL	MB<MDA
ARS1-B10-02302-03	ASP-A-009	0	TH-232	0.0095658	0.013226161	0.009565784	pCi	0	g	ARS-031	MBL	ARS1-B10-02302	0.7700302	U									n			MBL	MB<MDA
ARS1-B10-02302-03	ASP-A-009	0	TH-232	0.0095658	0.013226161	0.009565784	pCi	0	g	ARS-031	MBL	ARS1-B10-02302	0.7700302	U									n			MBL	MB<MDA
ARS1-B10-02321-01	ASP-A-009	6.005677	TH-230	0.332282	0.038474199	0.798290814	pCi	0.012766	g	ARS-031	LCS	ARS1-B10-02321	0.8340859		75	103.9	5.783134	125		0.28				104		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02321-02	ASP-A-009	5.980836	TH-230	0.3296693	0.030496158	0.79447417	pCi	0.008845	g	ARS-031	LCSD	ARS1-B10-02321	0.8006627		75	103.9	5.74806	125	0.5004	0.29	0.02			104	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02321-03	ASP-A-009	0.036266	TH-228	0.0356263	0.0545574	0.035894873	pCi	0.021056	g	ARS-031	MBL	ARS1-B10-02321	0.8109229	U									n			MBL	MB<MDA
ARS1-B10-02321-03	ASP-A-009	0.434409	TH-230	0.0877479	0.02953008	0.102255792	pCi	0.008599	g	ARS-031	MBL	ARS1-B10-02321	0.8109229							4.2483		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02321-03	ASP-A-009	0.02537	TH-232	0.0265333	0.039444876	0.026709883	pCi	0.013568	g	ARS-031	MBL	ARS1-B10-02321	0.8109229	U									n			MBL	MB<MDA
ARS1-B10-02583-01	ASP-A-009	4.985061	TH-230	0.2805784	0.022130875	0.664625276	pCi	0.005498	g	ARS-031	LCS	ARS1-B10-02583	0.9139427		75	86.13	5.793315	125		1.22				86		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-01	ASP-A-009	4.985061	TH-230	0.2805784	0.022130875	0.664625276	pCi	0.005498	g	ARS-031	LCS	ARS1-B10-02583	0.9139427		75	86.13	5.793315	125		1.22				86		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-01	ASP-A-009	4.985061	TH-230	0.2805784	0.022130875	0.664625276	pCi	0.005498	g	ARS-031	LCS	ARS1-B10-02583	0.9139427		75	86.13	5.793315	125		1.22				86		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-01	ASP-A-009	4.985061	TH-230	0.2805784	0.022130875	0.664625276	pCi	0.005498	g	ARS-031	LCS	ARS1-B10-02583	0.9139427		75	86.13	5.793315	125		1.22				86		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-01	ASP-A-009	4.985061	TH-230	0.2805784	0.022130875	0.664625276	pCi	0.005498	g	ARS-031	LCS	ARS1-B10-02583	0.9139427		75	86.13	5.793315	125		1.22				86		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-01	ASP-A-009	4.985061	TH-230	0.2805784	0.022130875	0.664625276	pCi	0.005498	g	ARS-031	LCS	ARS1-B10-02583	0.9139427		75	86.13	5.793315	125		1.22				86		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-01	ASP-A-009	4.985061	TH-230	0.2805784	0.022130875	0.664625276	pCi	0.005498	g	ARS-031	LCS	ARS1-B10-02583	0.9139427		75	86.13	5.793315	125		1.22				86		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-02	ASP-A-009	5.073287	TH-230	0.2753146	0.020935905	0.672133349	pCi	0.005201	g	ARS-031	LCSD	ARS1-B10-02583	0.9828336		75	86.13	5.788789	125	1.5905	1.06	0.09			88	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-02	ASP-A-009	5.073287	TH-230	0.2753146	0.020935905	0.672133349	pCi	0.005201	g	ARS-031	LCSD	ARS1-B10-02583	0.9828336		75	86.13	5.788789	125	1.5905	1.06	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-02	ASP-A-009	5.073287	TH-230	0.2753146	0.020935905	0.672133349	pCi	0.005201	g	ARS-031	LCSD	ARS1-B10-02583	0.9828336		75	86.13	5.788789	125	1.5905	1.06	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-02	ASP-A-009	5.073287	TH-230	0.2753146	0.020935905	0.672133349	pCi	0.005201	g	ARS-031	LCSD	ARS1-B10-02583	0.9828336		75	86.13	5.788789	125	1.5905	1.06	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-02	ASP-A-009	5.073287	TH-230	0.2753146	0.020935905	0.672133349	pCi	0.005201	g	ARS-031	LCSD	ARS1-B10-02583	0.9828336		75	86.13	5.788789	125	1.5905	1.06	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0) MARLAP	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-02583-02	ASP-A-009	5.073287	TH-230	0.2753146	0.020935905	0.672133349	pCi	0.005201	g	ARS-031	LCSD	ARS1-B10-02583	0.9828336		75	86.13	5.788789	125	1.5905	1.06	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-02	ASP-A-009	5.073287	TH-230	0.2753146	0.020935905	0.672133349	pCi	0.005201	g	ARS-031	LCSD	ARS1-B10-02583	0.9828336		75	86.13	5.788789	125	1.5905	1.06	0.00			88	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.016949	TH-228	0.0284729	0.050159279	0.028546536	pCi	0.019854	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.036246	TH-230	0.0255759	0.028929429	0.025948398	pCi	0.009292	g	ARS-031	MBL	ARS1-B10-02583	0.9728425							1.3969		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02583-03	ASP-A-009	0.036246	TH-230	0.0255759	0.028929429	0.025948398	pCi	0.009292	g	ARS-031	MBL	ARS1-B10-02583	0.9728425							1.3969		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02583-03	ASP-A-009	0.036246	TH-230	0.0255759	0.028929429	0.025948398	pCi	0.009292	g	ARS-031	MBL	ARS1-B10-02583	0.9728425							1.3969		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02583-03	ASP-A-009	0.036246	TH-230	0.0255759	0.028929429	0.025948398	pCi	0.009292	g	ARS-031	MBL	ARS1-B10-02583	0.9728425							1.3969		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02583-03	ASP-A-009	0.036246	TH-230	0.0255759	0.028929429	0.025948398	pCi	0.009292	g	ARS-031	MBL	ARS1-B10-02583	0.9728425							1.3969		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02583-03	ASP-A-009	0.036246	TH-230	0.0255759	0.028929429	0.025948398	pCi	0.009292	g	ARS-031	MBL	ARS1-B10-02583	0.9728425							1.3969		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02583-03	ASP-A-009	0.036246	TH-230	0.0255759	0.028929429	0.025948398	pCi	0.009292	g	ARS-031	MBL	ARS1-B10-02583	0.9728425							1.3969		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02583-03	ASP-A-009	0.003942	TH-232	0.0103689	0.022173249	0.010379839	pCi	0.005924	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.003942	TH-232	0.0103689	0.022173249	0.010379839	pCi	0.005924	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.003942	TH-232	0.0103689	0.022173249	0.010379839	pCi	0.005924	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.003942	TH-232	0.0103689	0.022173249	0.010379839	pCi	0.005924	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.003942	TH-232	0.0103689	0.022173249	0.010379839	pCi	0.005924	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.003942	TH-232	0.0103689	0.022173249	0.010379839	pCi	0.005924	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02583-03	ASP-A-009	0.003942	TH-232	0.0103689	0.022173249	0.010379839	pCi	0.005924	g	ARS-031	MBL	ARS1-B10-02583	0.9728425	U									n			MBL	MB<MDA
ARS1-B10-02584-01	ASP-A-009	6.702687	TH-230	0.3648509	0.037889928	0.888460481	pCi	0.011951	g	ARS-031	LCS	ARS1-B10-02584	0.7276382		75	116	5.775777	125		1.04				116		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02584-01	ASP-A-009	6.702687	TH-230	0.3648509	0.037889928	0.888460481	pCi	0.011951	g	ARS-031	LCS	ARS1-B10-02584	0.7276382		75	116	5.775777	125		1.04				116		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02584-01	ASP-A-009	6.702687	TH-230	0.3648509	0.037889928	0.888460481	pCi	0.011951	g	ARS-031	LCS	ARS1-B10-02584	0.7276382		75	116	5.775777	125		1.04				116		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02584-02	ASP-A-009	5.618979	TH-230	0.3154664	0.033786161	0.748807597	pCi	0.010656	g	ARS-031	LCSD	ARS1-B10-02584	0.814575		75	116	5.77408	125	17.532	0.21	0.93			97	17.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02584-02	ASP-A-009	5.618979	TH-230	0.3154664	0.033786161	0.748807597	pCi	0.010656	g	ARS-031	LCSD	ARS1-B10-02584	0.814575		75	116	5.77408	125	17.532	0.21	0.00			97	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02584-02	ASP-A-009	5.618979	TH-230	0.3154664	0.033786161	0.748807597	pCi	0.010656	g	ARS-031	LCSD	ARS1-B10-02584	0.814575		75	116	5.77408	125	17.532	0.21	0.00			97	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02584-03	ASP-A-009	0.103664	TH-228	0.0537655	0.066590572	0.055205991	pCi	0.026974	g	ARS-031	MBL	ARS1-B10-02584	0.8632097							1.8778		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02584-03	ASP-A-009	0.103664	TH-228	0.0537655	0.066590572	0.055205991	pCi	0.026974	g	ARS-031	MBL	ARS1-B10-02584	0.8632097							1.8778		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02584-03	ASP-A-009	0.103664	TH-228	0.0537655	0.066590572	0.055205991	pCi	0.026974	g	ARS-031	MBL	ARS1-B10-02584	0.8632097							1.8778		n	Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02584-03	ASP-A-009	0.223296	TH-230	0.0646095	0.037176123	0.070019386	pCi	0.012335	g	ARS-031	MBL	ARS1-B10-02584	0.8632097							3.1891		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02584-03	ASP-A-009	0.223296	TH-230	0.0646095	0.037176123	0.070019386	pCi	0.012335	g	ARS-031	MBL	ARS1-B10-02584	0.8632097							3.1891		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02584-03	ASP-A-009	0.223296	TH-230	0.0646095	0.037176123	0.070019386	pCi	0.012335	g	ARS-031	MBL	ARS1-B10-02584	0.8632097							3.1891		Y	Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02584-03	ASP-A-009	0.007543	TH-232	0.01717	0.033803105	0.017194226	pCi	0.010661	g	ARS-031	MBL	ARS1-B10-02584	0.8632097	U									n			MBL	MB<MDA
ARS1-B10-02584-03	ASP-A-009	0.007543	TH-232	0.01717	0.033803105	0.017194226	pCi	0.010661	g	ARS-031	MBL	ARS1-B10-02584	0.8632097	U									n			MBL	MB<MDA
ARS1-B10-02584-03	ASP-A-009	0.007543	TH-232	0.01717	0.033803105	0.017194226	pCi	0.010661	g	ARS-031	MBL	ARS1-B10-02584	0.8632097	U									n			MBL	MB<MDA
ARS1-B10-02728-01	ASP-A-009	5.760205	TH-230	0.3352644	0.013765569	0.772703344	pCi	0	g	ARS-031	LCS	ARS1-B10-02728	0.9041866		75	99.65	5.780302	125		0.03				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02728-01	ASP-A-009	5.760205	TH-230	0.3352644	0.013765569	0.772703344	pCi	0	g	ARS-031	LCS	ARS1-B10-02728	0.9041866		75	99.65	5.780302	125		0.03				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02728-02	ASP-A-009	5.595449	TH-230	0.3299371	0.035881657	0.752461131	pCi	0.01109	g	ARS-031	LCSD	ARS1-B10-02728	0.8265486		75	99.65	5.769554	125	2.8169	0.23	0.15			97	2.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02728-02	ASP-A-009	5.595449	TH-230	0.3299371	0.035881657	0.752461131	pCi	0.01109	g	ARS-031	LCSD	ARS1-B10-02728	0.8265486		75	99.65	5.769554	125	2.8169	0.23	0.00			97	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02728-03	ASP-A-009	-0.00245	TH-232	0.0047976	0.036006174	0.004806672	pCi	0.008053	g	ARS-031	MBL	ARS1-B10-02728	0.5697586	U									n			MBL	MB<MDA
ARS1-B10-02728-03	ASP-A-009	-0.00245	TH-232	0.0047976	0.036006174	0.004806672	pCi	0.008053	g	ARS-031	MBL	ARS1-B10-02728	0.5697586	U									n			MBL	MB<MDA
	GAM-A-020	34025	AM-241	418.7736	264.4	2420.992	pCi	132.2	g	ARS-007	LCS	ARS1-B10-03586			75	97.43	34896.7	125		0.36				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-01	GAM-A-020	33844	AM-241	441.3332	287.1	2478.616	pCi	143.55	g	ARS-007	LCS	ARS1-B10-00884			75	96.86	34896.7	125		0.42				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-01	GAM-A-020	33844	AM-241	441.3332	287.1	2478.616	pCi	143.55	g	ARS-007	LCS	ARS1-B10-00884			75	96.86	34896.7	125		0.42				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-01	GAM-A-020	25551	CO-60	481.8856	260.2	1023.3944	pCi	130.1	g	ARS-007	LCS	ARS1-B10-00884			75	100.8	25394.58	125		0.15				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-01	GAM-A-020	25551	CO-60	481.8856	260.2	1023.3944	pCi	130.1	g	ARS-007	LCS	ARS1-B10-00884			75	100.8	25394.58	125		0.15				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-01	GAM-A-020	14800	CS-137	346.2144	133.9	664.2048	pCi	66.95	g	ARS-007	LCS	ARS1-B10-00884			75	96.32	15365.62	125		0.85				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-01	GAM-A-020	14800	CS-137	346.2144	133.9	664.2048	pCi	66.95	g	ARS-007	LCS	ARS1-B10-00884			75	96.32	15365.62	125		0.85				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-02	GAM-A-020	34123	AM-241	440.608	283.1	2498.216	pCi	141.55	g	ARS-007	LCSD	ARS1-B10-00884			75	96.32	34896.7	125	0.8837	0.31	0.08			98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-02	GAM-A-020	34123	AM-241	440.608	283.1	2498.216	pCi	141.55	g	ARS-007	LCSD	ARS1-B10-00884			75	96.32	34896.7	125	0.8837	0.31	0.08			98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-02	GAM-A-020	25595	CO-60	476.9072	244.7	1022.434	pCi	122.35	g	ARS-007	LCSD	ARS1-B10-00884			75	96.32	25394.58	125	0.1955	0.20	0.03			101	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-02	GAM-A-020	25595	CO-60	476.9072	244.7	1022.434	pCi	122.35	g	ARS-007	LCSD	ARS1-B10-00884			75	96.32	25394.58	125	0.1955	0.20	0.03			101	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-02	GAM-A-020	14989	CS-137	351.1732	160.2	672.9464	pCi	80.1	g	ARS-007	LCSD	ARS1-B10-00884			75	96.32	15365.62	125	1.2756	0.56	0.20			98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-02	GAM-A-020	14989	CS-137	351.1732	160.2	672.9464	pCi	80.1	g	ARS-007	LCSD	ARS1-B10-00884			75	96.32	15365.62	125	1.2756	0.56	0.20			98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00884-03	GAM-A-020	0.00283	AM-241	0.0120311	0.0216	0.012032636	pCi	0.0108	g	ARS-007	MBL	ARS1-B10-00884		U									n			MBL	MB<MDA
ARS1-B10-00884-03	GAM-A-020	0.00283	AM-241	0.0120311	0.0216	0.012032636	pCi	0.0108	g	ARS-007	MBL	ARS1-B10-00884		U									n			MBL	MB<MDA
ARS1-B10-00884-03	GAM-A-020	-0.00171	CO-60	0.0443548	0.0216	0.0443548	pCi	0.0108	g	ARS-007	MBL	ARS1-B10-00884		U									n			MBL	MB<MDA
ARS1-B10-00884-03	GAM-A-020	-0.00171	CO-60	0.0443548	0.0216	0.0443548	pCi	0.0108	g	ARS-007	MBL	ARS1-B10-00884		U									n			MBL	MB<MDA
ARS1-B10-00884-03	GAM-A-020	-0.00147	CS-137	0.0576769	0.0181	0.05767692	pCi	0.00905	g	ARS-007	MBL	ARS1-B10-00884		U									n			MBL	MB<MDA
ARS1-B10-00884-03	GAM-A-020	-0.00147	CS-137	0.0576769	0.0181	0.05767692	pCi	0.00905	g	ARS-007	MBL	ARS1-B10-00884		U									n			MBL	MB<MDA
ARS1-B10-00947-01	GAM-A-020	33131	AM-241	395.1752	245.8	2379.048	pCi	122.9	g	ARS-007	LCS	ARS1-B10-00947			75	94.85	34896.7	125		0.74				95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-01	GAM-A-020	33131	AM-241	395.1752	245.8	2379.048	pCi	122.9	g	ARS-007	LCS	ARS1-B10-00947			75	94.85	34896.7	125		0.74				95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-01	GAM-A-020	24692	CO-60	416.8528	206.5	966.9464	pCi	103.25	g	ARS-007	LCS	ARS1-B10-00947			75	97.23	25394.58	125		0.73				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-01	GAM-A-020	24692	CO-60	416.8528	206.5	966.9464	pCi	103.25	g	ARS-007	LCS	ARS1-B10-00947			75	97.23	25394.58	125		0.73				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-01	GAM-A-020	15212	CS-137	315.9324	123.8	662.7544	pCi	61.9	g	ARS-007	LCS	ARS1-B10-00947			75	98.99	15365.62	125		0.23				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-01	GAM-A-020	15212	CS-137	315.9324	123.8	662.7544	pCi	61.9	g	ARS-007	LCS	ARS1-B10-00947			75	98.99	15365.62	125		0.23				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-02	GAM-A-020	34160	AM-241	438.5892	278.6	2500.372	pCi	139.3	g	ARS-007	LCSD	ARS1-B10-00947			75	98.99	34896.7	125	3.2689	0.29	0.30			98	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-02	GAM-A-020	34160	AM-241	438.5892	278.6	2500.372	pCi	139.3	g	ARS-007	LCSD	ARS1-B10-00947			75	98.99	34896.7	125	3.2689	0.29	0.30			98	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-02	GAM-A-020	25978	CO-60	489.706	276.3	1040.368	pCi	138.15	g	ARS-007	LCSD	ARS1-B10-00947			75	98.99	25394.58	125	5.0918	0.56	0.91			102	5.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-02	GAM-A-020	25978	CO-60	489.706	276.3	1040.368	pCi	138.15	g	ARS-007	LCSD	ARS1-B10-00947			75	98.99	25394.58	125	5.0918	0.56	0.91			102	5.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-02	GAM-A-020	15426	CS-137	360.2284	155.8	691.9388	pCi	77.9	g	ARS-007	LCSD	ARS1-B10-00947			75	98.99	15365.62	125	1.436	0.09	0.22			100	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-02	GAM-A-020	15426	CS-137	360.2284	155.8	691.9388	pCi	77.9	g	ARS-007	LCSD	ARS1-B10-00947			75	98.99	15365.62	125	1.436	0.09	0.22			100	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00947-03	GAM-A-020	-0.00808	AM-241	0.0243961	0.0251	0.024402	pCi	0.01255	g	ARS-007	MBL	ARS1-B10-00947		U									n			MBL	MB<MDA
ARS1-B10-00947-03	GAM-A-020	-0.00808	AM-241	0.0243961	0.0251	0.024402	pCi	0.01255	g	ARS-007	MBL	ARS1-B10-00947		U									n			MBL	MB<MDA
ARS1-B10-00947-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.00829	0.04084052	pCi	0.004145	g	ARS-007	MBL	ARS1-B10-00947		U									n			MBL	MB<MDA
ARS1-B10-00947-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.00829	0.04084052	pCi	0.004145	g	ARS-007	MBL	ARS1-B10-00947		U									n			MBL	MB<MDA
ARS1-B10-00947-03	GAM-A-020	-0.00335	CS-137	0.027732	0.0203	0.02773204	pCi	0.01015	g	ARS-007	MBL	ARS1-B10-00947		U									n			MBL	MB<MDA
ARS1-B10-00947-03	GAM-A-020	-0.00335	CS-137	0.027732	0.0203	0.02773204	pCi	0.01015	g	ARS-007	MBL	ARS1-B10-00947		U									n			MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-00971-01	GAM-A-020	34661	AM-241	389.6088	233	2513.7	pCi	116.5	g	ARS-007	LCS	ARS1-B10-00971			75	99.44	34896.7	125		0.09					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-01	GAM-A-020	34661	AM-241	389.6088	233	2513.7	pCi	116.5	g	ARS-007	LCS	ARS1-B10-00971			75	99.44	34896.7	125		0.09					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-01	GAM-A-020	25330	CO-60	400.1536	220.4	980.4116	pCi	110.2	g	ARS-007	LCS	ARS1-B10-00971			75	99.75	25394.58	125		0.07					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-01	GAM-A-020	25330	CO-60	400.1536	220.4	980.4116	pCi	110.2	g	ARS-007	LCS	ARS1-B10-00971			75	99.75	25394.58	125		0.07					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-01	GAM-A-020	15194	CS-137	307.5828	121	658.2072	pCi	60.5	g	ARS-007	LCS	ARS1-B10-00971			75	98.86	15365.62	125		0.26					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-01	GAM-A-020	15194	CS-137	307.5828	121	658.2072	pCi	60.5	g	ARS-007	LCS	ARS1-B10-00971			75	98.86	15365.62	125		0.26					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-02	GAM-A-020	34182	AM-241	417.6564	252.1	2498.412	pCi	126.05	g	ARS-007	LCSD	ARS1-B10-00971			75	98.86	34896.7	125	1.4514	0.29	0.14				98	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-02	GAM-A-020	34182	AM-241	417.6564	252.1	2498.412	pCi	126.05	g	ARS-007	LCSD	ARS1-B10-00971			75	98.86	34896.7	125	1.4514	0.29	0.14				98	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-02	GAM-A-020	25548	CO-60	481.768	252.7	1023.2376	pCi	126.35	g	ARS-007	LCSD	ARS1-B10-00971			75	98.86	25394.58	125	0.8648	0.15	0.15				101	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-02	GAM-A-020	25548	CO-60	481.768	252.7	1023.2376	pCi	126.35	g	ARS-007	LCSD	ARS1-B10-00971			75	98.86	25394.58	125	0.8648	0.15	0.15				101	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-02	GAM-A-020	15324	CS-137	348.0568	140.4	682.3544	pCi	70.2	g	ARS-007	LCSD	ARS1-B10-00971			75	98.86	15365.62	125	0.8522	0.06	0.14				100	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-02	GAM-A-020	15324	CS-137	348.0568	140.4	682.3544	pCi	70.2	g	ARS-007	LCSD	ARS1-B10-00971			75	98.86	15365.62	125	0.8522	0.06	0.14				100	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00971-03	GAM-A-020	0.000582	AM-241	0.0145883	0.0259	0.014588476	pCi	0.01295	g	ARS-007	MBL	ARS1-B10-00971		U									n				MBL	MB<MDA
ARS1-B10-00971-03	GAM-A-020	0.000582	AM-241	0.0145883	0.0259	0.014588476	pCi	0.01295	g	ARS-007	MBL	ARS1-B10-00971		U									n				MBL	MB<MDA
ARS1-B10-00971-03	GAM-A-020	-0.00202	CO-60	0.0428044	0.0216	0.04280444	pCi	0.0108	g	ARS-007	MBL	ARS1-B10-00971		U									n				MBL	MB<MDA
ARS1-B10-00971-03	GAM-A-020	-0.00202	CO-60	0.0428044	0.0216	0.04280444	pCi	0.0108	g	ARS-007	MBL	ARS1-B10-00971		U									n				MBL	MB<MDA
ARS1-B10-00971-03	GAM-A-020	-0.00338	CS-137	0.0156104	0.0179	0.015611792	pCi	0.00895	g	ARS-007	MBL	ARS1-B10-00971		U									n				MBL	MB<MDA
ARS1-B10-00971-03	GAM-A-020	-0.00338	CS-137	0.0156104	0.0179	0.015611792	pCi	0.00895	g	ARS-007	MBL	ARS1-B10-00971		U									n				MBL	MB<MDA
ARS1-B10-00999-01	GAM-A-020	33674	AM-241	422.1448	280.5	2421.58	pCi	140.25	g	ARS-007	LCS	ARS1-B10-00999			75	96.57	34896.7	125		0.50					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-01	GAM-A-020	33674	AM-241	422.1448	280.5	2421.58	pCi	140.25	g	ARS-007	LCS	ARS1-B10-00999			75	96.57	34896.7	125		0.50					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-01	GAM-A-020	24506	CO-60	440.118	248	974.8844	pCi	124	g	ARS-007	LCS	ARS1-B10-00999			75	96.52	25394.58	125		0.91					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-01	GAM-A-020	24506	CO-60	440.118	248	974.8844	pCi	124	g	ARS-007	LCS	ARS1-B10-00999			75	96.52	25394.58	125		0.91					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-01	GAM-A-020	15108	CS-137	341.9612	161.3	698.7204	pCi	80.65	g	ARS-007	LCS	ARS1-B10-00999			75	98.34	15365.62	125		0.37					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-01	GAM-A-020	15108	CS-137	341.9612	161.3	698.7204	pCi	80.65	g	ARS-007	LCS	ARS1-B10-00999			75	98.34	15365.62	125		0.37					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-02	GAM-A-020	34827	AM-241	402.2704	250.9	2527.224	pCi	125.45	g	ARS-007	LCSD	ARS1-B10-00999			75	98.34	34896.7	125	3.2117	0.03	0.33				100	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-02	GAM-A-020	34827	AM-241	402.2704	250.9	2527.224	pCi	125.45	g	ARS-007	LCSD	ARS1-B10-00999			75	98.34	34896.7	125	3.2117	0.03	0.33				100	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-02	GAM-A-020	25301	CO-60	400.7612	178.4	979.7256	pCi	89.2	g	ARS-007	LCSD	ARS1-B10-00999			75	98.34	25394.58	125	3.1721	0.10	0.58				100	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-02	GAM-A-020	25301	CO-60	400.7612	178.4	979.7256	pCi	89.2	g	ARS-007	LCSD	ARS1-B10-00999			75	98.34	25394.58	125	3.1721	0.10	0.58				100	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-02	GAM-A-020	15195	CS-137	300.0564	123.7	654.7576	pCi	61.85	g	ARS-007	LCSD	ARS1-B10-00999			75	98.34	15365.62	125	0.5939	0.26	0.09				99	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-02	GAM-A-020	15195	CS-137	300.0564	123.7	654.7576	pCi	61.85	g	ARS-007	LCSD	ARS1-B10-00999			75	98.34	15365.62	125	0.5939	0.26	0.09				99	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-00999-03	GAM-A-020	-0.00207	AM-241	0.0380299	0.0241	0.03802988	pCi	0.01205	g	ARS-007	MBL	ARS1-B10-00999		U									n				MBL	MB<MDA
ARS1-B10-00999-03	GAM-A-020	-0.00207	AM-241	0.0380299	0.0241	0.03802988	pCi	0.01205	g	ARS-007	MBL	ARS1-B10-00999		U									n				MBL	MB<MDA
ARS1-B10-00999-03	GAM-A-020	-0.00449	CO-60	0.0179217	0.0199	0.017923808	pCi	0.00995	g	ARS-007	MBL	ARS1-B10-00999		U									n				MBL	MB<MDA
ARS1-B10-00999-03	GAM-A-020	-0.00449	CO-60	0.0179217	0.0199	0.017923808	pCi	0.00995	g	ARS-007	MBL	ARS1-B10-00999		U									n				MBL	MB<MDA
ARS1-B10-00999-03	GAM-A-020	-0.00057	CS-137	0.133476	0.014	0.133476	pCi	0.007	g	ARS-007	MBL	ARS1-B10-00999		U									n				MBL	MB<MDA
ARS1-B10-00999-03	GAM-A-020	-0.00057	CS-137	0.133476	0.014	0.133476	pCi	0.007	g	ARS-007	MBL	ARS1-B10-00999		U									n				MBL	MB<MDA
ARS1-B10-01030-01	GAM-A-020	33891	AM-241	407.4448	250.7	2409.82	pCi	125.35	g	ARS-007	LCS	ARS1-B10-01030			75	97.14	34896.7	125		0.42					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01030-01	GAM-A-020	24761	CO-60	433.0032	238.3	986.468	pCi	119.15	g	ARS-007	LCS	ARS1-B10-01030			75	97.5	25394.58	125		0.64					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01030-01	GAM-A-020	15212	CS-137	328.4372	129.2	708.1088	pCi	64.6	g	ARS-007	LCS	ARS1-B10-01030			75	98.99	15365.62	125		0.22					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01030-02	GAM-A-020	34523	AM-241	391.2748	238.5	2504.096	pCi	119.25	g	ARS-007	LCSD	ARS1-B10-01030			75	98.99	34896.7	125	1.7544	0.15	0.18				99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01030-02	GAM-A-020	24363	CO-60	568.4	236.9	1031.5676	pCi	118.45	g	ARS-007	LCSD	ARS1-B10-01030			75	98.99	25394.58	125	1.6287	1.00	0.28				96	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01030-02	GAM-A-020	15044	CS-137	296.842	113.4	648.1328	pCi	56.7	g	ARS-007	LCSD	ARS1-B10-01030			75	98.99	15365.62	125	1.124	0.50	0.18				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01030-03	GAM-A-020	0.013052	AM-241	0.0138394	0.0231	0.013870332	pCi	0.01155	g	ARS-007	MBL	ARS1-B10-01030		U									n				MBL	MB<MDA
ARS1-B10-01030-03	GAM-A-020	-0.00085	CO-60	0.0573398	0.019	0.0573398	pCi	0.0095	g	ARS-007	MBL	ARS1-B10-01030		U									n				MBL	MB<MDA
ARS1-B10-01030-03	GAM-A-020	0.002155	CS-137	0.0083469	0.0153	0.008348032	pCi	0.00765	g	ARS-007	MBL	ARS1-B10-01030		U									n				MBL	MB<MDA
ARS1-B10-01047-01	GAM-A-020	34230	AM-241	423.7324	272.6	2460.584	pCi	136.3	g	ARS-007	LCS	ARS1-B10-01047			75	98	34896.7	125		0.27					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01047-01	GAM-A-020	25010	CO-60	419.0284	224.4	978.922	pCi	112.2	g	ARS-007	LCS	ARS1-B10-01047			75	98.49	25394.58	125		0.39					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01047-01	GAM-A-020	14806	CS-137	321.6164	135.4	651.9744	pCi	67.7	g	ARS-007	LCS	ARS1-B10-01047			75	96.38	15365.62	125		0.86					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01047-02	GAM-A-020	33968	AM-241	444.7828	287.6	2488.024	pCi	143.8	g	ARS-007	LCSD	ARS1-B10-01047			75	96.38	34896.7	125	0.5865	0.37	0.07				97	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01047-02	GAM-A-020	25950	CO-60	485.3352	243.5	1037.4672	pCi	121.75	g	ARS-007	LCSD	ARS1-B10-01047			75	96.38	25394.58	125	3.6892	0.54	0.66				102	3.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01047-02	GAM-A-020	15214	CS-137	363.9328	149.6	686.98	pCi	74.8	g	ARS-007	LCSD	ARS1-B10-01047			75	96.38	15365.62	125	2.6649	0.22	0.43				99	2.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01047-03	GAM-A-020	0.002719	AM-241	0.0110852	0.02	0.01108674	pCi	0.01	g	ARS-007	MBL	ARS1-B10-01047		U									n				MBL	MB<MDA
ARS1-B10-01047-03	GAM-A-020	0.002817	CO-60	0.0080095	0.0157	0.0080115	pCi	0.00785	g	ARS-007	MBL	ARS1-B10-01047		U									n				MBL	MB<MDA
ARS1-B10-01047-03	GAM-A-020	0.001933	CS-137	0.0084895	0.0161	0.008490328	pCi	0.00805	g	ARS-007	MBL	ARS1-B10-01047		U									n				MBL	MB<MDA
ARS1-B10-01071-01	GAM-A-020	33959	AM-241	432.1408	282.2	2418.836	pCi	141.1	g	ARS-007	LCS	ARS1-B10-01071			75	97.43	34896.7	125		0.39					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01071-01	GAM-A-020	24321	CO-60	439.138	250.8	975.0608	pCi	125.4	g	ARS-007	LCS	ARS1-B10-01071			75	95.77	25394.58	125		1.10					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01071-01	GAM-A-020	15481	CS-137	335.2188	141	721.0644	pCi	70.5	g	ARS-007	LCS	ARS1-B10-01071			75	100.7	15365.62	125		0.16					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01071-02	GAM-A-020	34102	AM-241	422.6544	259.9	2493.708	pCi	129.95	g	ARS-007	LCSD	ARS1-B10-01071			75	100.7	34896.7	125	0.2937	0.32	0.04				98	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01071-02	GAM-A-020	26346	CO-60	487.8636	258	1051.0304	pCi	129	g	ARS-007	LCSD	ARS1-B10-01071			75	100.7	25394.58	125	8.0126	0.91	1.41				104	8.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01071-02	GAM-A-020	15368	CS-137	356.4456	130.7	688.0972	pCi	65.35	g	ARS-007	LCSD	ARS1-B10-01071			75	100.7	15365.62	125	0.7131	0.00	0.11				100	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01071-03	GAM-A-020	0.003423	AM-241	0.0115901	0.0205	0.011592616	pCi	0.01025	g	ARS-007	MBL	ARS1-B10-01071		U									n				MBL	MB<MDA
ARS1-B10-01071-03	GAM-A-020	0.001923	CO-60	0.0086803	0.0165	0.008681036	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-01071		U									n				MBL	MB<MDA
ARS1-B10-01071-03	GAM-A-020	-0.00256	CS-137	0.0551936	0.0145	0.0551936	pCi	0.00725	g	ARS-007	MBL	ARS1-B10-01071		U									n				MBL	MB<MDA
ARS1-B10-01154-01	GAM-A-020	33921	AM-241	397.5272	242	2434.712	pCi	121	g	ARS-007	LCS	ARS1-B10-01154			75	97.14	34896.7	125		0.40					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01154-01	GAM-A-020	24848	CO-60	415.9512	205.1	972.454	pCi	102.55	g	ARS-007	LCS	ARS1-B10-01154			75	97.86	25394.58	125		0.56					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01154-01	GAM-A-020	15089	CS-137	309.4056	122.4	655.5808	pCi	61.2	g	ARS-007	LCS	ARS1-B10-01154			75	98.21	15365.62	125		0.42					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01154-02	GAM-A-020	33808	AM-241	426.888	283.4	2431.772	pCi	141.7	g	ARS-007	LCSD	ARS1-B10-01154			75	98.21	34896.7	125	0.2954	0.45	0.03				97	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01154-02	GAM-A-020	25077	CO-60	459.6396	280.9	1001.8148	pCi	140.45	g	ARS-007	LCSD	ARS1-B10-01154			75	98.21	25394.58	125	0.9213	0.32	0.16				99	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01154-02	GAM-A-020	15268	CS-137	364.5012	153.9	715.5764	pCi	76.95	g	ARS-007	LCSD	ARS1-B10-01154			75	98.21	15365.62	125	1.1858	0.14	0.18				99	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01154-03	GAM-A-020	-0.00111	AM-241	0.0400781	0.0234	0.04007808	pCi	0.0117	g	ARS-007	MBL	ARS1-B10-01154		U									n				MBL	MB<MDA
ARS1-B10-01154-03	GAM-A-020	-0.00157	CO-60	0.0465618	0.0194	0.04656176	pCi	0.0097	g	ARS-007	MBL	ARS1-B10-01154		U									n				MBL	MB<MDA
ARS1-B10-01154-03	GAM-A-020	-0.00152	CS-137	0.4724384	0.0165	0.4724384	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-01154		U									n				MBL	MB<MDA
ARS1-B10-01160-01	GAM-A-020	34117	AM-241	429.1812	279.3	2453.724	pCi	139.65	g	ARS-007	LCS	ARS1-B10-01160			75	97.72	34896.7	125		0.32					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01160-01	GAM-A-020	24986	CO-60	419.6164	225.1	978.432	pCi	112.55	g	ARS-007	LCS	ARS1-B10-01160			75	98.41	25394.58	125		0.42					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01160-01	GAM-A-020	14660	CS-137	305.8188	127.3	639.4108	pCi	63.65	g	ARS-007	LCS	ARS1-B10-01160			75	95.41	15365.62	125		1.10					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01160-02	GAM-A-020	33780	AM-241	426.9664	273.5	2405.508	pCi	136.75	g	ARS-007	LCSD	ARS1-B10-01160			75	95.41	34896.7	125	0.8837	0.46	0.10				97	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01160-02	GAM-A-020	24776	CO-60	439.4712	232.3	989.7804	pCi	116.15	g	ARS-007	LCSD	ARS1-B10-01160			75	95.41	25394.58	125	0.8439	0.62	0.15				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01160-02	GAM-A-020	14938	CS-137	327.7708	121.5	697.76	pCi	60.75	g	ARS-007	LCSD	ARS1-B10-01160			75	95.41	15365.62	125	1.8919	0.61	0.29				97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01160-03	GAM-A-020	-0.00216	AM-241	1.9382244	0.0234	1.9382244	pCi	0.0117	g	ARS-007	MBL	ARS1-B10-01160		U									n				MBL	MB<MDA
ARS1-B10-01160-03	GAM-A-020	-0.00349	CO-60	0.0113866	0.0211	0.01138858	pCi	0.01055	g	ARS-007	MBL	ARS1-B10-01160		U									n				MBL	MB<MDA
ARS1-B10-01160-03	GAM-A-020	-0.00094	CS-137	0.010222	0.0162	0.010222184	pCi	0.0081	g	ARS-007	MBL	ARS1-B10-01160		U									n				MBL	MB<MDA
ARS1-B10-01190-01	GAM-A-020	33750	AM-241	409.7968	252.5	2400.412	pCi	126.25	g	ARS-007	LCS	ARS1-B10-01190			75	96.86	34896.7	125		0.48					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01190-01	GAM-A-020	24840	CO-60	431.9252	196.9	988.5064	pCi	98.45	g	ARS-007	LCS	ARS1-B10-01190			75	97.82	25394.58	125		0.56					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01190-01	GAM-A-020	15123	CS-137	329.77	120.4	705.4628	pCi	60.2	g	ARS-007	LCS	ARS1-B10-01190			75	98.4	15365.62	125		0.34					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	CheckRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01190-02	GAM-A-020	34189	AM-241	420.9296	254.7	2499.392	pCi	127.35	g	ARS-007	LCSD	ARS1-B10-01190			75	98.4	34896.7	125	1.1765	0.28	0.13				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01190-02	GAM-A-020	25645	CO-60	482.7676	264.9	1026.7264	pCi	132.45	g	ARS-007	LCSD	ARS1-B10-01190			75	98.4	25394.58	125	3.2086	0.24	0.56				101	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01190-02	GAM-A-020	15150	CS-137	373.0664	155.3	689.822	pCi	77.65	g	ARS-007	LCSD	ARS1-B10-01190			75	98.4	15365.62	125	0.1982	0.31	0.03				99	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01190-03	GAM-A-020	-0.00355	AM-241	0.0206976	0.0257	0.02069956	pCi	0.01285	g	ARS-007	MBL	ARS1-B10-01190		U									n				MBL	MB<MDA
ARS1-B10-01190-03	GAM-A-020	0.00225	CO-60	0.0084472	0.0163	0.008448384	pCi	0.00815	g	ARS-007	MBL	ARS1-B10-01190		U									n				MBL	MB<MDA
ARS1-B10-01190-03	GAM-A-020	-0.00404	CS-137	0.0155869	0.0191	0.01558886	pCi	0.00955	g	ARS-007	MBL	ARS1-B10-01190		U									n				MBL	MB<MDA
ARS1-B10-01271-01	GAM-A-020	33420	AM-241	412.1684	265.8	2402.176	pCi	132.9	g	ARS-007	LCS	ARS1-B10-01271			75	95.71	34896.7	125		0.61					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01271-01	GAM-A-020	24949	CO-60	419.9888	199.3	976.4916	pCi	99.65	g	ARS-007	LCS	ARS1-B10-01271			75	98.25	25394.58	125		0.46					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01271-01	GAM-A-020	14964	CS-137	317.3828	124.8	655.1104	pCi	62.4	g	ARS-007	LCS	ARS1-B10-01271			75	97.36	15365.62	125		0.61					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01271-02	GAM-A-020	34198	AM-241	428.7696	283.9	2459.212	pCi	141.95	g	ARS-007	LCSD	ARS1-B10-01271			75	97.36	34896.7	125	2.3669	0.28	0.23				98	2.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01271-02	GAM-A-020	24762	CO-60	444.626	303.2	985.0372	pCi	151.6	g	ARS-007	LCSD	ARS1-B10-01271			75	97.36	25394.58	125	0.7644	0.64	0.13				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01271-02	GAM-A-020	14701	CS-137	325.8304	151.7	676.5332	pCi	75.85	g	ARS-007	LCSD	ARS1-B10-01271			75	97.36	15365.62	125	1.7532	0.98	0.28				96	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01271-03	GAM-A-020	0.003202	AM-241	0.0123692	0.0221	0.012371128	pCi	0.01105	g	ARS-007	MBL	ARS1-B10-01271		U									n				MBL	MB<MDA
ARS1-B10-01271-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0232	0.04084052	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-01271		U									n				MBL	MB<MDA
ARS1-B10-01271-03	GAM-A-020	0.001787	CS-137	0.0098541	0.0184	0.009854684	pCi	0.0092	g	ARS-007	MBL	ARS1-B10-01271		U									n				MBL	MB<MDA
ARS1-B10-01287-01	GAM-A-020	34395	AM-241	417.2644	257.7	2446.276	pCi	128.85	g	ARS-007	LCS	ARS1-B10-01287			75	98.58	34896.7	125		0.21					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01287-01	GAM-A-020	25004	CO-60	437.962	199.6	996.4248	pCi	99.8	g	ARS-007	LCS	ARS1-B10-01287			75	98.45	25394.58	125		0.39					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01287-01	GAM-A-020	15312	CS-137	332.1024	127.2	713.4596	pCi	63.6	g	ARS-007	LCS	ARS1-B10-01287			75	99.64	15365.62	125		0.08					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01287-02	GAM-A-020	34124	AM-241	430.1416	281.9	2454.312	pCi	140.95	g	ARS-007	LCSD	ARS1-B10-01287			75	99.64	34896.7	125	0.8759	0.31	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01287-02	GAM-A-020	24419	CO-60	447.468	310.1	975.4724	pCi	155.05	g	ARS-007	LCSD	ARS1-B10-01287			75	99.64	25394.58	125	2.3472	1.00	0.42				96	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01287-02	GAM-A-020	14607	CS-137	364.9912	198.6	693.0168	pCi	99.3	g	ARS-007	LCSD	ARS1-B10-01287			75	99.64	15365.62	125	4.6791	1.09	0.71				95	4.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01287-03	GAM-A-020	0.000925	AM-241	0.0092122	0.0173	0.009212588	pCi	0.00865	g	ARS-007	MBL	ARS1-B10-01287		U									n				MBL	MB<MDA
ARS1-B10-01287-03	GAM-A-020	0.000152	CO-60	0.0065503	0.0141	0.00655032	pCi	0.00705	g	ARS-007	MBL	ARS1-B10-01287		U									n				MBL	MB<MDA
ARS1-B10-01287-03	GAM-A-020	0.003818	CS-137	0.0082824	0.0148	0.008285704	pCi	0.0074	g	ARS-007	MBL	ARS1-B10-01287		U									n				MBL	MB<MDA
ARS1-B10-01304-01	GAM-A-020	34120	AM-241	424.1636	270	2428.44	pCi	135	g	ARS-007	LCS	ARS1-B10-01304			75	97.72	34896.7	125		0.32					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01304-01	GAM-A-020	24928	CO-60	432.1604	192.2	991.466	pCi	96.1	g	ARS-007	LCS	ARS1-B10-01304			75	98.17	25394.58	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01304-01	GAM-A-020	15078	CS-137	330.4364	123.2	704.1496	pCi	61.6	g	ARS-007	LCS	ARS1-B10-01304			75	98.14	15365.62	125		0.41					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01304-02	GAM-A-020	33966	AM-241	406.6608	253.7	2439.22	pCi	126.85	g	ARS-007	LCSD	ARS1-B10-01304			75	98.14	34896.7	125	0.2937	0.38	0.04				97	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01304-02	GAM-A-020	25155	CO-60	427.6916	229	986.4092	pCi	114.5	g	ARS-007	LCSD	ARS1-B10-01304			75	98.14	25394.58	125	0.9183	0.24	0.16				99	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01304-02	GAM-A-020	14887	CS-137	315.266	116.5	651.5236	pCi	58.25	g	ARS-007	LCSD	ARS1-B10-01304			75	98.14	15365.62	125	1.2679	0.73	0.20				97	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01304-03	GAM-A-020	0.003401	AM-241	0.0124834	0.0218	0.012485788	pCi	0.0109	g	ARS-007	MBL	ARS1-B10-01304		U									n				MBL	MB<MDA
ARS1-B10-01304-03	GAM-A-020	-0.00021	CO-60	0.0084168	0.0232	0.008416828	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-01304		U									n				MBL	MB<MDA
ARS1-B10-01304-03	GAM-A-020	-0.00218	CS-137	0.0101669	0.0169	0.010167892	pCi	0.00845	g	ARS-007	MBL	ARS1-B10-01304		U									n				MBL	MB<MDA
ARS1-B10-01314-01	GAM-A-020	34228	AM-241	420.9884	273.1	2459.996	pCi	136.55	g	ARS-007	LCS	ARS1-B10-01314			75	98	34896.7	125		0.27					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01314-01	GAM-A-020	24699	CO-60	443.8812	279.4	982.7048	pCi	139.7	g	ARS-007	LCS	ARS1-B10-01314			75	97.26	25394.58	125		0.71					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01314-01	GAM-A-020	15249	CS-137	335.454	159.3	700.5432	pCi	79.65	g	ARS-007	LCS	ARS1-B10-01314			75	99.25	15365.62	125		0.17					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01314-02	GAM-A-020	34386	AM-241	414.834	257.6	2445.296	pCi	128.8	g	ARS-007	LCSD	ARS1-B10-01314			75	99.25	34896.7	125	0.5831	0.21	0.05				99	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01314-02	GAM-A-020	24957	CO-60	440.0788	214.8	995.876	pCi	107.4	g	ARS-007	LCSD	ARS1-B10-01314			75	99.25	25394.58	125	1.0471	0.44	0.18				98	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01314-02	GAM-A-020	15020	CS-137	329.0644	126.5	701.386	pCi	63.25	g	ARS-007	LCSD	ARS1-B10-01314			75	99.25	15365.62	125	1.5197	0.49	0.23				98	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01314-03	GAM-A-020	0.003173	AM-241	0.0113506	0.0201	0.011352908	pCi	0.01005	g	ARS-007	MBL	ARS1-B10-01314		U									n				MBL	MB<MDA
ARS1-B10-01314-03	GAM-A-020	-0.0026	CO-60	0.0257466	0.0193	0.02574852	pCi	0.00965	g	ARS-007	MBL	ARS1-B10-01314		U									n				MBL	MB<MDA
ARS1-B10-01314-03	GAM-A-020	0.002185	CS-137	0.0069272	0.0128	0.0069286	pCi	0.0064	g	ARS-007	MBL	ARS1-B10-01314		U									n				MBL	MB<MDA
ARS1-B10-01331-01	GAM-A-020	33589	AM-241	401.5256	244.8	2387.868	pCi	122.4	g	ARS-007	LCS	ARS1-B10-01331			75	96.28	34896.7	125		0.55					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01331-01	GAM-A-020	24620	CO-60	430.6708	202.6	980.9016	pCi	101.3	g	ARS-007	LCS	ARS1-B10-01331			75	96.95	25394.58	125		0.79					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01331-01	GAM-A-020	15454	CS-137	335.2384	139.7	720.104	pCi	69.85	g	ARS-007	LCS	ARS1-B10-01331			75	100.5	15365.62	125		0.12					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01331-02	GAM-A-020	34084	AM-241	402.6232	248.2	2446.864	pCi	124.1	g	ARS-007	LCSD	ARS1-B10-01331			75	100.5	34896.7	125	1.4771	0.33	0.14				98	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01331-02	GAM-A-020	25101	CO-60	427.3976	221.5	984.5472	pCi	110.75	g	ARS-007	LCSD	ARS1-B10-01331			75	100.5	25394.58	125	1.9308	0.30	0.35				99	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01331-02	GAM-A-020	15156	CS-137	314.2664	120.7	660.0692	pCi	60.35	g	ARS-007	LCSD	ARS1-B10-01331			75	100.5	15365.62	125	1.8948	0.32	0.31				99	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01331-03	GAM-A-020	0.007526	AM-241	0.0118952	0.0204	0.011907	pCi	0.0102	g	ARS-007	MBL	ARS1-B10-01331		U									n				MBL	MB<MDA
ARS1-B10-01331-03	GAM-A-020	0.002535	CO-60	0.0105356	0.0198	0.010536764	pCi	0.0099	g	ARS-007	MBL	ARS1-B10-01331		U									n				MBL	MB<MDA
ARS1-B10-01331-03	GAM-A-020	0.000892	CS-137	0.0091244	0.0169	0.009124584	pCi	0.00845	g	ARS-007	MBL	ARS1-B10-01331		U									n				MBL	MB<MDA
ARS1-B10-01346-01	GAM-A-020	33662	AM-241	444.234	289.1	2466.072	pCi	144.55	g	ARS-007	LCS	ARS1-B10-01346			75	96.57	34896.7	125		0.50					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01346-01	GAM-A-020	25714	CO-60	479.2788	245.9	1027.2752	pCi	122.95	g	ARS-007	LCS	ARS1-B10-01346			75	101.2	25394.58	125		0.31					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01346-01	GAM-A-020	15297	CS-137	357.504	137	686.3332	pCi	68.5	g	ARS-007	LCS	ARS1-B10-01346			75	99.57	15365.62	125		0.10					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01346-02	GAM-A-020	33493	AM-241	423.0072	273.2	2384.928	pCi	136.6	g	ARS-007	LCSD	ARS1-B10-01346			75	99.57	34896.7	125	0.5952	0.59	0.05				96	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01346-02	GAM-A-020	24561	CO-60	436.5704	236.8	981.6072	pCi	118.4	g	ARS-007	LCSD	ARS1-B10-01346			75	99.57	25394.58	125	4.5753	0.85	0.81				97	4.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01346-02	GAM-A-020	14814	CS-137	323.3412	136.8	691.194	pCi	68.4	g	ARS-007	LCSD	ARS1-B10-01346			75	99.57	15365.62	125	3.2547	0.80	0.50				96	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01346-03	GAM-A-020	-0.00481	AM-241	0.0196902	0.0225	0.01969212	pCi	0.01125	g	ARS-007	MBL	ARS1-B10-01346		U									n				MBL	MB<MDA
ARS1-B10-01346-03	GAM-A-020	0	CO-60	0.0074727	0.0151	0.007472696	pCi	0.00755	g	ARS-007	MBL	ARS1-B10-01346		U									n				MBL	MB<MDA
ARS1-B10-01346-03	GAM-A-020	-0.00238	CS-137	0.0865418	0.016	0.08654184	pCi	0.008	g	ARS-007	MBL	ARS1-B10-01346		U									n				MBL	MB<MDA
ARS1-B10-01357-01	GAM-A-020	33545	AM-241	386.5316	228.7	2406.684	pCi	114.35	g	ARS-007	LCS	ARS1-B10-01357			75	96	34896.7	125		0.56					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01357-01	GAM-A-020	24937	CO-60	417.3624	207.4	974.9824	pCi	103.7	g	ARS-007	LCS	ARS1-B10-01357			75	98.21	25394.58	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01357-01	GAM-A-020	15375	CS-137	324.0076	111.5	672.084	pCi	55.75	g	ARS-007	LCS	ARS1-B10-01357			75	100.1	15365.62	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01357-02	GAM-A-020	34262	AM-241	413.462	255.7	2436.476	pCi	127.85	g	ARS-007	LCSD	ARS1-B10-01357			75	100.1	34896.7	125	2.3599	0.26	0.21				98	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01357-02	GAM-A-020	25016	CO-60	439.7652	209.8	997.6204	pCi	104.9	g	ARS-007	LCSD	ARS1-B10-01357			75	100.1	25394.58	125	0.3203	0.38	0.06				99	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01357-02	GAM-A-020	15334	CS-137	331.8672	147.8	714.1456	pCi	73.9	g	ARS-007	LCSD	ARS1-B10-01357			75	100.1	15365.62	125	0.3256	0.04	0.04				100	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01357-03	GAM-A-020	0.005522	AM-241	0.0111871	0.0198	0.011193952	pCi	0.0099	g	ARS-007	MBL	ARS1-B10-01357		U									n				MBL	MB<MDA
ARS1-B10-01357-03	GAM-A-020	0.004339	CO-60	0.0106985	0.0196	0.010701796	pCi	0.0098	g	ARS-007	MBL	ARS1-B10-01357		U									n				MBL	MB<MDA
ARS1-B10-01357-03	GAM-A-020	0.005859	CS-137	0.0081168	0.0138	0.008124788	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-01357		U									n				MBL	MB<MDA
ARS1-B10-01380-01	GAM-A-020	33685	AM-241	422.8308	271.1	2398.256	pCi	135.55	g	ARS-007	LCS	ARS1-B10-01380			75	96.57	34896.7	125		0.51					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01380-02	GAM-A-020	34693	AM-241	397.7036	246.9	2517.032	pCi	123.45	g	ARS-007	LCSD	ARS1-B10-01380			75	97.03	34896.7	125	2.924	0.08	0.29				99	2.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01380-03	GAM-A-020	0.002008	AM-241	0.0123012	0.0219	0.012302136	pCi	0.01095	g	ARS-007	MBL	ARS1-B10-01380		U									n				MBL	MB<MDA
ARS1-B10-01380-03	GAM-A-020	-0.00149	CS-137	0.0554308	0.0158	0.05543076	pCi	0.0079	g	ARS-007	MBL	ARS1-B10-01380		U									n				MBL	MB<MDA
ARS1-B10-01410-01	GAM-A-020	34752	AM-241	397.8212	246.6	2521.344	pCi	123.3	g	ARS-007	LCS	ARS1-B10-01410			75	99.72	34896.7	125		0.06					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01410-01	GAM-A-020	15485	CS-137	315.3248	110.7	671.692	pCi	55.35	g	ARS-007	LCS	ARS1-B10-01410			75	100.8	15365.62	125		0.18					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01410-02	GAM-A-020	34430	AM-241	421.4784	272.3	2474.108	pCi	136.15	g	ARS-007	LCSD	ARS1-B10-01410			75	100.8	34896.7	125	1.1561	0.19	0.09				99	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01410-02	GAM-A-020	14884	CS-137	359.9344	155.5	699.916	pCi	77.75	g	ARS-007	LCSD	ARS1-B10-01410			75	100.8	15365.62	125	4.0171	0.69	0.62				97	4.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01410-03	GAM-A-020	0.005053	AM-241	0.0117402	0.0208	0.0117453	pCi	0.0104	g	ARS-007	MBL	ARS1-B10-01410		U									n				MBL	MB<MDA
ARS1-B10-01410-03	GAM-A-020	0.000814	CS-137	0.0082835	0.016	0.008283744	pCi	0.008	g	ARS-007	MBL	ARS1-B10-01410		U									n				MBL	MB<MDA
ARS1-B10-01415-01	GAM-A-020	34456	AM-241	423.1836	275.7	2476.264	pCi	137.85	g	ARS-007	LCS	ARS1-B10-01415			75	98.86	34896.7	125		0.18					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01415-02	GAM-A-020	33643	AM-241	396.7628	244	2415.112	pCi	122	g	ARS-007	LCSD	ARS1-B10-01415			75	98.6	34896.7	125	2.6432	0.52	0.24				96	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01415-03	GAM-A-020	-0.0003	AM-241	0.0138223	0.0196	0.013822312	pCi	0.0098	g	ARS-007	MBL	ARS1-B10-01415		U									n				MBL	MB<MDA
ARS1-B10-01428-01	GAM-A-020	34185	AM-241	431.2392	267.9	2500.96	pCi	133.95	g	ARS-007	LCS	ARS1-B10-01428			75	98	34896.7	125		0.28					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01428-01	GAM-A-020	25557	CO-60	484.8648	269.3	1024.982	pCi	134.65	g	ARS-007	LCS	ARS1-B10-01428			75	100.8	25394.58	125		0.16					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01428-01	GAM-A-020	15184	CS-137	356.6612	153.9	682.1976	pCi	76.95	g	ARS-007	LCS	ARS1-B10-01428			75	98.79	15365.62	125		0.27					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01428-02	GAM-A-020	34145	AM-241	392.8232	227.9	2449.608	pCi	113.95	g	ARS-007	LCSD	ARS1-B10-01428			75	98.79	34896.7	125	0.2928	0.31	0.01				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01428-02	GAM-A-020	24729	CO-60	423.948	204.9	971.1996	pCi	102.45	g	ARS-007	LCSD	ARS1-B10-01428			75	98.79	25394.58	125	3.3009	0.69	0.59				97	3.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01428-02	GAM-A-020	15321	CS-137	323.3412	132.1	669.9476	pCi	66.05	g	ARS-007	LCSD	ARS1-B10-01428			75	98.79	15365.62	125	0.918	0.07	0.14				100	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01428-03	GAM-A-020	0.00401	AM-241	0.0126153	0.0224	0.012618284	pCi	0.0112	g	ARS-007	MBL	ARS1-B10-01428		U									n				MBL	MB<MDA
ARS1-B10-01428-03	GAM-A-020	-0.00046	CO-60	0.0255604	0.0204	0.02556036	pCi	0.0102	g	ARS-007	MBL	ARS1-B10-01428		U									n				MBL	MB<MDA
ARS1-B10-01428-03	GAM-A-020	-0.00277	CS-137	0.027538	0.0165	0.027538	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-01428		U									n				MBL	MB<MDA
ARS1-B10-01432-01	GAM-A-020	33964	AM-241	420.9884	269.3	2441.572	pCi	134.65	g	ARS-007	LCS	ARS1-B10-01432			75	97.43	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01432-01	GAM-A-020	25102	CO-60	411.208	176.3	978.5496	pCi	88.15	g	ARS-007	LCS	ARS1-B10-01432			75	98.84	25394.58	125		0.30					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01432-01	GAM-A-020	14885	CS-137	306.348	124.3	647.2704	pCi	62.15	g	ARS-007	LCS	ARS1-B10-01432			75	96.9	15365.62	125		0.74					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01432-02	GAM-A-020	34581	AM-241	411.11	252.1	2458.036	pCi	126.05	g	ARS-007	LCSD	ARS1-B10-01432			75	96.9	34896.7	125	1.7493	0.13	0.18				99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01432-02	GAM-A-020	24970	CO-60	438.4716	207	995.582	pCi	103.5	g	ARS-007	LCSD	ARS1-B10-01432			75	96.9	25394.58	125	0.5193	0.43	0.09				98	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01432-02	GAM-A-020	15139	CS-137	333.1804	134.8	707.6384	pCi	67.4	g	ARS-007	LCSD	ARS1-B10-01432			75	96.9	15365.62	125	1.665	0.32	0.26				99	1.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01432-03	GAM-A-020	0.002461	AM-241	0.0105785	0.0193	0.01058008	pCi	0.00965	g	ARS-007	MBL	ARS1-B10-01432		U									n				MBL	MB<MDA
ARS1-B10-01432-03	GAM-A-020	-0.0009	CO-60	0.0093939	0.0186	0.009394084	pCi	0.0093	g	ARS-007	MBL	ARS1-B10-01432		U									n				MBL	MB<MDA
ARS1-B10-01432-03	GAM-A-020	-0.00155	CS-137	0.010243	0.0171	0.010243352	pCi	0.00855	g	ARS-007	MBL	ARS1-B10-01432		U									n				MBL	MB<MDA
ARS1-B10-01452-01	GAM-A-020	34026	AM-241	390.9612	242.8	2468.816	pCi	121.4	g	ARS-007	LCS	ARS1-B10-01452			75	97.43	34896.7	125		0.35					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01452-01	GAM-A-020	24641	CO-60	568.4	207.1	1039.78	pCi	103.55	g	ARS-007	LCS	ARS1-B10-01452			75	96.87	25394.58	125		0.72					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01452-01	GAM-A-020	15442	CS-137	314.3252	131.4	669.7516	pCi	65.7	g	ARS-007	LCS	ARS1-B10-01452			75	100.5	15365.62	125		0.11					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01452-02	GAM-A-020	34267	AM-241	416.8528	248.9	2504.292	pCi	124.45	g	ARS-007	LCSD	ARS1-B10-01452			75	100.5	34896.7	125	0.8785	0.25	0.07				98	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01452-02	GAM-A-020	25867	CO-60	480.4744	231.1	1032.5868	pCi	115.55	g	ARS-007	LCSD	ARS1-B10-01452			75	100.5	25394.58	125	4.8703	0.46	0.84				102	4.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01452-02	GAM-A-020	15675	CS-137	361.228	148.8	700.6216	pCi	74.4	g	ARS-007	LCSD	ARS1-B10-01452			75	100.5	15365.62	125	1.5424	0.44	0.24				102	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01452-03	GAM-A-020	0.001079	AM-241	0.0103118	0.0187	0.010311952	pCi	0.00935	g	ARS-007	MBL	ARS1-B10-01452		U									n				MBL	MB<MDA
ARS1-B10-01452-03	GAM-A-020	0.00289	CO-60	0.0078721	0.0146	0.007874104	pCi	0.0073	g	ARS-007	MBL	ARS1-B10-01452		U									n				MBL	MB<MDA
ARS1-B10-01452-03	GAM-A-020	-0.00397	CS-137	0.0220382	0.0146	0.0220402	pCi	0.0073	g	ARS-007	MBL	ARS1-B10-01452		U									n				MBL	MB<MDA
ARS1-B10-01469-01	GAM-A-020	33588	AM-241	424.3008	263.9	2457.448	pCi	131.95	g	ARS-007	LCS	ARS1-B10-01469			75	96.28	34896.7	125		0.53					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01469-01	GAM-A-020	25054	CO-60	657.1292	224.7	1102.5	pCi	112.35	g	ARS-007	LCS	ARS1-B10-01469			75	98.84	25394.58	125		0.31					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01469-01	GAM-A-020	15084	CS-137	348.6644	139	674.7496	pCi	69.5	g	ARS-007	LCS	ARS1-B10-01469			75	98.14	15365.62	125		0.42					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01469-02	GAM-A-020	34388	AM-241	419.1852	267.8	2470.972	pCi	133.9	g	ARS-007	LCSD	ARS1-B10-01469			75	98.14	34896.7	125	2.3529	0.21	0.23				99	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01469-02	GAM-A-020	24696	CO-60	455.4648	270.2	987.8792	pCi	135.1	g	ARS-007	LCSD	ARS1-B10-01469			75	98.14	25394.58	125	1.407	0.71	0.24				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01469-02	GAM-A-020	15100	CS-137	340.7656	168.2	697.858	pCi	84.1	g	ARS-007	LCSD	ARS1-B10-01469			75	98.14	15365.62	125	0.1325	0.38	0.02				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01469-03	GAM-A-020	0.007828	AM-241	0.0096883	0.0167	0.009703176	pCi	0.00835	g	ARS-007	MBL	ARS1-B10-01469		U									n				MBL	MB<MDA
ARS1-B10-01469-03	GAM-A-020	-0.00016	CO-60	0.0161888	0.0234	0.016188816	pCi	0.0117	g	ARS-007	MBL	ARS1-B10-01469		U									n				MBL	MB<MDA
ARS1-B10-01469-03	GAM-A-020	-0.00183	CS-137	0.0654993	0.0147	0.06549928	pCi	0.00735	g	ARS-007	MBL	ARS1-B10-01469		U									n				MBL	MB<MDA
ARS1-B10-01496-01	GAM-A-020	34221	AM-241	421.2236	273.7	2459.604	pCi	136.85	g	ARS-007	LCS	ARS1-B10-01496			75	98	34896.7	125		0.27					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01496-01	GAM-A-020	24841	CO-60	451.8976	301.9	990.8192	pCi	150.95	g	ARS-007	LCS	ARS1-B10-01496			75	97.82	25394.58	125		0.56					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01496-01	GAM-A-020	14998	CS-137	332.5336	157.5	690.2532	pCi	78.75	g	ARS-007	LCS	ARS1-B10-01496			75	97.62	15365.62	125		0.53					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01496-02	GAM-A-020	33749	AM-241	409.5616	241.6	2466.268	pCi	120.8	g	ARS-007	LCSD	ARS1-B10-01496			75	97.62	34896.7	125	1.4728	0.47	0.14				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01496-02	GAM-A-020	25630	CO-60	479.3572	230.6	1024.6684	pCi	115.3	g	ARS-007	LCSD	ARS1-B10-01496			75	97.62	25394.58	125	3.1306	0.23	0.55				101	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01496-02	GAM-A-020	15196	CS-137	347.8608	135.7	678.0228	pCi	67.85	g	ARS-007	LCSD	ARS1-B10-01496			75	97.62	15365.62	125	1.3245	0.25	0.20				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01496-03	GAM-A-020	0.004682	AM-241	0.0117496	0.0208	0.01175412	pCi	0.0104	g	ARS-007	MBL	ARS1-B10-01496		U									n				MBL	MB<MDA
ARS1-B10-01496-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.00829	0.04084052	pCi	0.004145	g	ARS-007	MBL	ARS1-B10-01496		U									n				MBL	MB<MDA
ARS1-B10-01496-03	GAM-A-020	-0.00379	CS-137	0.0205271	0.0173	0.02052708	pCi	0.00865	g	ARS-007	MBL	ARS1-B10-01496		U									n				MBL	MB<MDA
ARS1-B10-01528-01	GAM-A-020	34308	AM-241	402.3292	255.7	2490.572	pCi	127.85	g	ARS-007	LCS	ARS1-B10-01528			75	98.29	34896.7	125		0.24					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01528-01	GAM-A-020	25022	CO-60	394.5284	180.5	968.1812	pCi	90.25	g	ARS-007	LCS	ARS1-B10-01528			75	98.52	25394.58	125		0.38					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01528-01	GAM-A-020	15360	CS-137	309.5624	120.4	664.734	pCi	60.2	g	ARS-007	LCS	ARS1-B10-01528			75	99.96	15365.62	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01528-02	GAM-A-020	34050	AM-241	442.1172	281.5	2493.316	pCi	140.75	g	ARS-007	LCSD	ARS1-B10-01528			75	99.96	34896.7	125	0.5848	0.34	0.07				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01528-02	GAM-A-020	25485	CO-60	484.708	266.6	1022.6692	pCi	133.3	g	ARS-007	LCSD	ARS1-B10-01528			75	99.96	25394.58	125	1.861	0.09	0.33				100	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01528-02	GAM-A-020	14882	CS-137	356.132	144.2	672.084	pCi	72.1	g	ARS-007	LCSD	ARS1-B10-01528			75	99.96	15365.62	125	3.1746	0.72	0.51				97	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01528-03	GAM-A-020	0.001977	AM-241	0.0079621	0.0139	0.007963088	pCi	0.00695	g	ARS-007	MBL	ARS1-B10-01528		U									n				MBL	MB<MDA
ARS1-B10-01528-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0154	0.04084052	pCi	0.0077	g	ARS-007	MBL	ARS1-B10-01528		U									n				MBL	MB<MDA
ARS1-B10-01528-03	GAM-A-020	-0.00385	CS-137	0.0122708	0.00993	0.012273128	pCi	0.004965	g	ARS-007	MBL	ARS1-B10-01528		U									n				MBL	MB<MDA
ARS1-B10-01528-03	GAM-A-020	0	RA-226	0	0.237	0	pCi	0.1185	g	ARS-007	MBL	ARS1-B10-01528		U									n				MBL	MB<MDA
ARS1-B10-01574-01	GAM-A-020	34210	AM-241	414.442	264.5	2457.644	pCi	132.25	g	ARS-007	LCS	ARS1-B10-01574			75	98	34896.7	125		0.28					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-01	GAM-A-020	34210	AM-241	414.442	264.5	2457.644	pCi	132.25	g	ARS-007	LCS	ARS1-B10-01574			75	98	34896.7	125		0.28					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-01	GAM-A-020	25032	CO-60	454.8768	280.6	998.2476	pCi	140.3	g	ARS-007	LCS	ARS1-B10-01574			75	98.56	25394.58	125		0.36					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-01	GAM-A-020	25032	CO-60	454.8768	280.6	998.2476	pCi	140.3	g	ARS-007	LCS	ARS1-B10-01574			75	98.56	25394.58	125		0.36					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-01	GAM-A-020	14787	CS-137	322.714	146.7	678.062	pCi	73.35	g	ARS-007	LCS	ARS1-B10-01574			75	96.25	15365.62	125		0.85					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-01	GAM-A-020	14787	CS-137	322.714	146.7	678.062	pCi	73.35	g	ARS-007	LCS	ARS1-B10-01574			75	96.25	15365.62	125		0.85					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-02	GAM-A-020	33482	AM-241	410.7572	262.2	2406.292	pCi	131.1	g	ARS-007	LCSD	ARS1-B10-01574			75	96.25	34896.7	125	2.0679	0.59	0.21				96	2.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-02	GAM-A-020	33482	AM-241	410.7572	262.2	2406.292	pCi	131.1	g	ARS-007	LCSD	ARS1-B10-01574			75	96.25	34896.7	125	2.0679	0.59	0.21				96	2.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-02	GAM-A-020	24958	CO-60	424.3596	190.5	978.6672	pCi	95.25	g	ARS-007	LCSD	ARS1-B10-01574			75	96.25	25394.58	125	0.2801	0.45	0.05				98	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-02	GAM-A-020	24958	CO-60	424.3596	190.5	978.6672	pCi	95.25	g	ARS-007	LCSD	ARS1-B10-01574			75	96.25	25394.58	125	0.2801	0.45	0.05				98	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-02	GAM-A-020	15294	CS-137	317.226	131.4	666.1256	pCi	65.7	g	ARS-007	LCSD	ARS1-B10-01574			75	96.25	15365.62	125	3.3245	0.11	0.53				100	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-02	GAM-A-020	15294	CS-137	317.226	131.4	666.1256	pCi	65.7	g	ARS-007	LCSD	ARS1-B10-01574			75	96.25	15365.62	125	3.3245	0.11	0.53				100	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01574-03	GAM-A-020	0.011461	AM-241	0.0114423	0.0191	0.011471096	pCi	0.00955	g	ARS-007	MBL	ARS1-B10-01574		U									n				MBL	MB<MDA
ARS1-B10-01574-03	GAM-A-020	0.011461	AM-241	0.0114423	0.0191	0.011471096	pCi	0.00955	g	ARS-007	MBL	ARS1-B10-01574		U									n				MBL	MB<MDA
ARS1-B10-01574-03	GAM-A-020	-0.00342	CO-60	0.0204644	0.0194	0.02046436	pCi	0.0097	g	ARS-007	MBL	ARS1-B10-01574		U									n				MBL	MB<MDA
ARS1-B10-01574-03	GAM-A-020	-0.00342	CO-60	0.0204644	0.0194	0.02046436	pCi	0.0097	g	ARS-007	MBL	ARS1-B10-01574		U									n				MBL	MB<MDA
ARS1-B10-01574-03	GAM-A-020	-0.00075	CS-137	0.037238	0.0138	0.03723804	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-01574		U									n				MBL	MB<MDA
ARS1-B10-01574-03	GAM-A-020	-0.00075	CS-137	0.037238	0.0138	0.03723804	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-01574		U									n				MBL	MB<MDA
ARS1-B10-01574-03	GAM-A-020	0.51528	RA-226	0.1510141	0.187	0.1543402	pCi	0.0935	g	ARS-007	MBL	ARS1-B10-01574								3.3386		Y	Y				MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-01578-01	GAM-A-020	34537	AM-241	412.2664	264.3	2508.408	pCi	132.15	g	ARS-007	LCS	ARS1-B10-01578			75	98.86	34896.7	125		0.14					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-01	GAM-A-020	34537	AM-241	412.2664	264.3	2508.408	pCi	132.15	g	ARS-007	LCS	ARS1-B10-01578			75	98.86	34896.7	125		0.14					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-01	GAM-A-020	24851	CO-60	402.094	193.8	965.7704	pCi	96.9	g	ARS-007	LCS	ARS1-B10-01578			75	97.86	25394.58	125		0.56					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-01	GAM-A-020	24851	CO-60	402.094	193.8	965.7704	pCi	96.9	g	ARS-007	LCS	ARS1-B10-01578			75	97.86	25394.58	125		0.56					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-01	GAM-A-020	15143	CS-137	299.1548	108.5	652.582	pCi	54.25	g	ARS-007	LCS	ARS1-B10-01578			75	98.53	15365.62	125		0.34					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-01	GAM-A-020	15143	CS-137	299.1548	108.5	652.582	pCi	54.25	g	ARS-007	LCS	ARS1-B10-01578			75	98.53	15365.62	125		0.34					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-02	GAM-A-020	34245	AM-241	421.9488	256.5	2503.508	pCi	128.25	g	ARS-007	LCSD	ARS1-B10-01578			75	98.53	34896.7	125	0.8734	0.26	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-02	GAM-A-020	34245	AM-241	421.9488	256.5	2503.508	pCi	128.25	g	ARS-007	LCSD	ARS1-B10-01578			75	98.53	34896.7	125	0.8734	0.26	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-02	GAM-A-020	26055	CO-60	480.494	228.1	1038.506	pCi	114.05	g	ARS-007	LCSD	ARS1-B10-01578			75	98.53	25394.58	125	4.7535	0.64	0.85				103	4.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-02	GAM-A-020	26055	CO-60	480.494	228.1	1038.506	pCi	114.05	g	ARS-007	LCSD	ARS1-B10-01578			75	98.53	25394.58	125	4.7535	0.64	0.85				103	4.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-02	GAM-A-020	15112	CS-137	370.636	170.6	687.274	pCi	85.3	g	ARS-007	LCSD	ARS1-B10-01578			75	98.53	15365.62	125	0.1983	0.37	0.03				98	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01578-02	GAM-A-020	15112	CS-137	370.636	170.6	687.274	pCi	85.3	g	ARS-007	LCSD	ARS1-B10-01578			75	98.53	15365.62	125	0.1983	0.37	0.03				98	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01578-03	GAM-A-020	0.003905	AM-241	0.0147884	0.0261	0.014790748	pCi	0.01305	g	ARS-007	MBL	ARS1-B10-01578		U									n				MBL	MB<MDA
ARS1-B10-01578-03	GAM-A-020	0.003905	AM-241	0.0147884	0.0261	0.014790748	pCi	0.01305	g	ARS-007	MBL	ARS1-B10-01578		U									n				MBL	MB<MDA
ARS1-B10-01578-03	GAM-A-020	0.000393	CO-60	0.0107206	0.0213	0.010720612	pCi	0.01065	g	ARS-007	MBL	ARS1-B10-01578		U									n				MBL	MB<MDA
ARS1-B10-01578-03	GAM-A-020	0.000393	CO-60	0.0107206	0.0213	0.010720612	pCi	0.01065	g	ARS-007	MBL	ARS1-B10-01578		U									n				MBL	MB<MDA
ARS1-B10-01578-03	GAM-A-020	-0.001	CS-137	0.0480122	0.018	0.04801216	pCi	0.009	g	ARS-007	MBL	ARS1-B10-01578		U									n				MBL	MB<MDA
ARS1-B10-01578-03	GAM-A-020	-0.001	CS-137	0.0480122	0.018	0.04801216	pCi	0.009	g	ARS-007	MBL	ARS1-B10-01578		U									n				MBL	MB<MDA
ARS1-B10-01600-01	GAM-A-020	34213	AM-241	430.4552	281.8	2460.584	pCi	140.9	g	ARS-007	LCS	ARS1-B10-01600			75	98	34896.7	125		0.28					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01600-01	GAM-A-020	24842	CO-60	458.0324	277.5	993.6612	pCi	138.75	g	ARS-007	LCS	ARS1-B10-01600			75	97.82	25394.58	125		0.56					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01600-01	GAM-A-020	14778	CS-137	407.0528	160.9	721.7308	pCi	80.45	g	ARS-007	LCS	ARS1-B10-01600			75	96.19	15365.62	125		0.81					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01600-02	GAM-A-020	34334	AM-241	411.9136	251.3	2441.18	pCi	125.65	g	ARS-007	LCSD	ARS1-B10-01600			75	96.19	34896.7	125	0.292	0.23	0.03				98	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01600-02	GAM-A-020	25094	CO-60	441.7644	216	1001.0112	pCi	108	g	ARS-007	LCSD	ARS1-B10-01600			75	96.19	25394.58	125	1.0014	0.30	0.18				99	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01600-02	GAM-A-020	15069	CS-137	328.2608	132.4	702.7972	pCi	66.2	g	ARS-007	LCSD	ARS1-B10-01600			75	96.19	15365.62	125	1.943	0.42	0.29				98	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01600-03	GAM-A-020	-0.00759	AM-241	0.0160367	0.0215	0.01604554	pCi	0.01075	g	ARS-007	MBL	ARS1-B10-01600		U									n				MBL	MB<MDA
ARS1-B10-01600-03	GAM-A-020	-0.00459	CO-60	0.0165889	0.0188	0.016591204	pCi	0.0094	g	ARS-007	MBL	ARS1-B10-01600		U									n				MBL	MB<MDA
ARS1-B10-01600-03	GAM-A-020	0.002699	CS-137	0.0076473	0.0139	0.007649096	pCi	0.00695	g	ARS-007	MBL	ARS1-B10-01600		U									n				MBL	MB<MDA
ARS1-B10-01626-01	GAM-A-020	34380	AM-241	424.4772	261.2	2513.7	pCi	130.6	g	ARS-007	LCS	ARS1-B10-01626			75	98.58	34896.7	125		0.21					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-01	GAM-A-020	34380	AM-241	424.4772	261.2	2513.7	pCi	130.6	g	ARS-007	LCS	ARS1-B10-01626			75	98.58	34896.7	125		0.21					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-01	GAM-A-020	25441	CO-60	474.6532	217.6	1016.554	pCi	108.8	g	ARS-007	LCS	ARS1-B10-01626			75	100	25394.58	125		0.05					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-01	GAM-A-020	25441	CO-60	474.6532	217.6	1016.554	pCi	108.8	g	ARS-007	LCS	ARS1-B10-01626			75	100	25394.58	125		0.05					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-01	GAM-A-020	15138	CS-137	361.424	160.3	683.1972	pCi	80.15	g	ARS-007	LCS	ARS1-B10-01626			75	98.53	15365.62	125		0.33					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-01	GAM-A-020	15138	CS-137	361.424	160.3	683.1972	pCi	80.15	g	ARS-007	LCS	ARS1-B10-01626			75	98.53	15365.62	125		0.33					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-02	GAM-A-020	33983	AM-241	396.312	238.9	2438.828	pCi	119.45	g	ARS-007	LCSD	ARS1-B10-01626			75	98.53	34896.7	125	1.1696	0.37	0.11				97	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-02	GAM-A-020	33983	AM-241	396.312	238.9	2438.828	pCi	119.45	g	ARS-007	LCSD	ARS1-B10-01626			75	98.53	34896.7	125	1.1696	0.37	0.11				97	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-02	GAM-A-020	24932	CO-60	422.1644	208.9	976.9032	pCi	104.45	g	ARS-007	LCSD	ARS1-B10-01626			75	98.53	25394.58	125	2.025	0.47	0.36				98	2.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-02	GAM-A-020	24932	CO-60	422.1644	208.9	976.9032	pCi	104.45	g	ARS-007	LCSD	ARS1-B10-01626			75	98.53	25394.58	125	2.025	0.47	0.36				98	2.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-02	GAM-A-020	14948	CS-137	353.7212	128.4	672.966	pCi	64.2	g	ARS-007	LCSD	ARS1-B10-01626			75	98.53	15365.62	125	1.2629	0.62	0.20				97	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-02	GAM-A-020	14948	CS-137	353.7212	128.4	672.966	pCi	64.2	g	ARS-007	LCSD	ARS1-B10-01626			75	98.53	15365.62	125	1.2629	0.62	0.20				97	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01626-03	GAM-A-020	4.37E-05	AM-241	0.0325125	0.0574	0.03251248	pCi	0.0287	g	ARS-007	MBL	ARS1-B10-01626		U									n				MBL	MB<MDA
ARS1-B10-01626-03	GAM-A-020	4.37E-05	AM-241	0.0325125	0.0574	0.03251248	pCi	0.0287	g	ARS-007	MBL	ARS1-B10-01626		U									n				MBL	MB<MDA
ARS1-B10-01626-03	GAM-A-020	0.00186	CO-60	0.0187739	0.0357	0.018774252	pCi	0.01785	g	ARS-007	MBL	ARS1-B10-01626		U									n				MBL	MB<MDA
ARS1-B10-01626-03	GAM-A-020	0.00186	CO-60	0.0187739	0.0357	0.018774252	pCi	0.01785	g	ARS-007	MBL	ARS1-B10-01626		U									n				MBL	MB<MDA
ARS1-B10-01626-03	GAM-A-020	-0.01083	CS-137	0.0222205	0.0374	0.02223032	pCi	0.0187	g	ARS-007	MBL	ARS1-B10-01626		U									n				MBL	MB<MDA
ARS1-B10-01626-03	GAM-A-020	-0.01083	CS-137	0.0222205	0.0374	0.02223032	pCi	0.0187	g	ARS-007	MBL	ARS1-B10-01626		U									n				MBL	MB<MDA
ARS1-B10-01649-01	GAM-A-020	33947	AM-241	436.492	276.2	2484.888	pCi	138.1	g	ARS-007	LCS	ARS1-B10-01649			75	97.14	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	33947	AM-241	436.492	276.2	2484.888	pCi	138.1	g	ARS-007	LCS	ARS1-B10-01649			75	97.14	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	33947	AM-241	436.492	276.2	2484.888	pCi	138.1	g	ARS-007	LCS	ARS1-B10-01649			75	97.14	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	33947	AM-241	436.492	276.2	2484.888	pCi	138.1	g	ARS-007	LCS	ARS1-B10-01649			75	97.14	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	33947	AM-241	436.492	276.2	2484.888	pCi	138.1	g	ARS-007	LCS	ARS1-B10-01649			75	97.14	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	25604	CO-60	480.2	237.3	1024.2568	pCi	118.65	g	ARS-007	LCS	ARS1-B10-01649			75	100.8	25394.58	125		0.20					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	25604	CO-60	480.2	237.3	1024.2568	pCi	118.65	g	ARS-007	LCS	ARS1-B10-01649			75	100.8	25394.58	125		0.20					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	25604	CO-60	480.2	237.3	1024.2568	pCi	118.65	g	ARS-007	LCS	ARS1-B10-01649			75	100.8	25394.58	125		0.20					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	25604	CO-60	480.2	237.3	1024.2568	pCi	118.65	g	ARS-007	LCS	ARS1-B10-01649			75	100.8	25394.58	125		0.20					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	15208	CS-137	363.972	155.4	686.8036	pCi	77.7	g	ARS-007	LCS	ARS1-B10-01649			75	98.99	15365.62	125		0.23					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	15208	CS-137	363.972	155.4	686.8036	pCi	77.7	g	ARS-007	LCS	ARS1-B10-01649			75	98.99	15365.62	125		0.23					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	15208	CS-137	363.972	155.4	686.8036	pCi	77.7	g	ARS-007	LCS	ARS1-B10-01649			75	98.99	15365.62	125		0.23					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-01	GAM-A-020	15208	CS-137	363.972	155.4	686.8036	pCi	77.7	g	ARS-007	LCS	ARS1-B10-01649			75	98.99	15365.62	125		0.23					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	33790	AM-241	403.5052	253.4	2426.48	pCi	126.7	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	34896.7	125	0.2954	0.46	0.05				97	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	33790	AM-241	403.5052	253.4	2426.48	pCi	126.7	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	34896.7	125	0.2954	0.46	0.05				97	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	33790	AM-241	403.5052	253.4	2426.48	pCi	126.7	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	34896.7	125	0.2954	0.46	0.05				97	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	33790	AM-241	403.5052	253.4	2426.48	pCi	126.7	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	34896.7	125	0.2954	0.46	0.05				97	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	33790	AM-241	403.5052	253.4	2426.48	pCi	126.7	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	34896.7	125	0.2954	0.46	0.05				97	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	25212	CO-60	419.146	184.6	984.508	pCi	92.3	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	25394.58	125	1.5351	0.19	0.28				99	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	25212	CO-60	419.146	184.6	984.508	pCi	92.3	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	25394.58	125	1.5351	0.19	0.28				99	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	25212	CO-60	419.146	184.6	984.508	pCi	92.3	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	25394.58	125	1.5351	0.19	0.28				99	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	25212	CO-60	419.146	184.6	984.508	pCi	92.3	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	25394.58	125	1.5351	0.19	0.28				99	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	15360	CS-137	313.0316	117.3	666.3804	pCi	58.65	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	15365.62	125	0.9814	0.01	0.16				100	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	15360	CS-137	313.0316	117.3	666.3804	pCi	58.65	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	15365.62	125	0.9814	0.01	0.16				100	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	15360	CS-137	313.0316	117.3	666.3804	pCi	58.65	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	15365.62	125	0.9814	0.01	0.16				100	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	15360	CS-137	313.0316	117.3	666.3804	pCi	58.65	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	15365.62	125	0.9814	0.01	0.16				100	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-02	GAM-A-020	15360	CS-137	313.0316	117.3	666.3804	pCi	58.65	g	ARS-007	LCSD	ARS1-B10-01649			75	98.99	15365.62	125	0.9814	0.01	0.16				100	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01649-03	GAM-A-020	-0.00215	AM-241	0.0840879	0.026	0.08408792	pCi	0.013	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00215	AM-241	0.0840879	0.026	0.08408792	pCi	0.013	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00215	AM-241	0.0840879	0.026	0.08408792	pCi	0.013	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00215	AM-241	0.0840879	0.026	0.08408792	pCi	0.013	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00215	AM-241	0.0840879	0.026	0.08408792	pCi	0.013	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0232	0.04084052	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0232	0.04084052	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0232	0.04084052	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0232	0.04084052	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	0.00197	CS-137	0.0085525	0.0162	0.008553244	pCi	0.0081	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	0.00197	CS-137	0.0085525	0.0162	0.008553244	pCi	0.0081	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	0.00197	CS-137	0.0085525	0.0162	0.008553244	pCi	0.0081	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	0.00197	CS-137	0.0085525	0.0162	0.008553244	pCi	0.0081	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01649-03	GAM-A-020	0.00197	CS-137	0.0085525	0.0162	0.008553244	pCi	0.0081	g	ARS-007	MBL	ARS1-B10-01649		U									n				MBL	MB<MDA
ARS1-B10-01698-01	GAM-A-020	34207	AM-241	401.2512	254.2	2483.32	pCi	127.1	g	ARS-007	LCS	ARS1-B10-01698			75	98	34896.7	125		0.28					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01698-01	GAM-A-020	25212	CO-60	397.9976	206	975.7272	pCi	103	g	ARS-007	LCS	ARS1-B10-01698			75	99.27	25394.58	125		0.19					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01698-01	GAM-A-020	15045	CS-137	301.6244	123.2	650.3672	pCi	61.6	g	ARS-007	LCS	ARS1-B10-01698			75	97.95	15365.62	125		0.49					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01698-02	GAM-A-020	33705	AM-241	409.7576	242.7	2463.328	pCi	121.35	g	ARS-007	LCSD	ARS1-B10-01698			75	97.95	34896.7	125	1.4728	0.48	0.14				97	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01698-02	GAM-A-020	25389	CO-60	486.08	267.6	1020.3172	pCi	133.8	g	ARS-007	LCSD	ARS1-B10-01698			75	97.95	25394.58	125	0.7115	0.01	0.13				100	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01698-02	GAM-A-020	15307	CS-137	351.8396	151.2	683.7068	pCi	75.6	g	ARS-007	LCSD	ARS1-B10-01698			75	97.95	15365.62	125	1.7128	0.09	0.28				100	1.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01698-03	GAM-A-020	0.001693	AM-241	0.009723	0.0179	0.00972356	pCi	0.00895	g	ARS-007	MBL	ARS1-B10-01698		U									n				MBL	MB<MDA
ARS1-B10-01698-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.00829	0.04084052	pCi	0.004145	g	ARS-007	MBL	ARS1-B10-01698		U									n				MBL	MB<MDA
ARS1-B10-01698-03	GAM-A-020	-0.00257	CS-137	0.0364364	0.019	0.0364364	pCi	0.0095	g	ARS-007	MBL	ARS1-B10-01698		U									n				MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > RD	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01734-01	GAM-A-020	34157	AM-241	425.2024	277	2455.88	pCi	138.5	g	ARS-007	LCS	ARS1-B10-01734			75	98	34896.7	125		0.30					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-01	GAM-A-020	34157	AM-241	425.2024	277	2455.88	pCi	138.5	g	ARS-007	LCS	ARS1-B10-01734			75	98	34896.7	125		0.30					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-01	GAM-A-020	24701	CO-60	447.0956	290	984.2336	pCi	145	g	ARS-007	LCS	ARS1-B10-01734			75	97.26	25394.58	125		0.70					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-01	GAM-A-020	24701	CO-60	447.0956	290	984.2336	pCi	145	g	ARS-007	LCS	ARS1-B10-01734			75	97.26	25394.58	125		0.70					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-01	GAM-A-020	15235	CS-137	362.2668	154.6	713.2832	pCi	77.3	g	ARS-007	LCS	ARS1-B10-01734			75	99.18	15365.62	125		0.18					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-01	GAM-A-020	15235	CS-137	362.2668	154.6	713.2832	pCi	77.3	g	ARS-007	LCS	ARS1-B10-01734			75	99.18	15365.62	125		0.18					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-02	GAM-A-020	34347	AM-241	419.734	263.3	2468.032	pCi	131.65	g	ARS-007	LCSD	ARS1-B10-01734			75	99.18	34896.7	125	0.292	0.22	0.05				98	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-02	GAM-A-020	34347	AM-241	419.734	263.3	2468.032	pCi	131.65	g	ARS-007	LCSD	ARS1-B10-01734			75	99.18	34896.7	125	0.292	0.22	0.05				98	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-02	GAM-A-020	25032	CO-60	420.0084	215.5	980.0392	pCi	107.75	g	ARS-007	LCSD	ARS1-B10-01734			75	99.18	25394.58	125	1.3272	0.37	0.24				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-02	GAM-A-020	25032	CO-60	420.0084	215.5	980.0392	pCi	107.75	g	ARS-007	LCSD	ARS1-B10-01734			75	99.18	25394.58	125	1.3272	0.37	0.24				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-02	GAM-A-020	14918	CS-137	312.0516	119.6	651.0728	pCi	59.8	g	ARS-007	LCSD	ARS1-B10-01734			75	99.18	15365.62	125	2.122	0.69	0.33				97	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-02	GAM-A-020	14918	CS-137	312.0516	119.6	651.0728	pCi	59.8	g	ARS-007	LCSD	ARS1-B10-01734			75	99.18	15365.62	125	2.122	0.69	0.33				97	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01734-03	GAM-A-020	-0.00672	AM-241	0.0279516	0.049	0.02795744	pCi	0.0245	g	ARS-007	MBL	ARS1-B10-01734		U									n				MBL	MB<MDA
ARS1-B10-01734-03	GAM-A-020	-0.00672	AM-241	0.0279516	0.049	0.02795744	pCi	0.0245	g	ARS-007	MBL	ARS1-B10-01734		U									n				MBL	MB<MDA
ARS1-B10-01734-03	GAM-A-020	0.003401	CO-60	0.0203232	0.0379	0.0203252	pCi	0.01895	g	ARS-007	MBL	ARS1-B10-01734		U									n				MBL	MB<MDA
ARS1-B10-01734-03	GAM-A-020	0.003401	CO-60	0.0203232	0.0379	0.0203252	pCi	0.01895	g	ARS-007	MBL	ARS1-B10-01734		U									n				MBL	MB<MDA
ARS1-B10-01734-03	GAM-A-020	-0.00338	CS-137	0.0209367	0.0342	0.02093672	pCi	0.0171	g	ARS-007	MBL	ARS1-B10-01734		U									n				MBL	MB<MDA
ARS1-B10-01734-03	GAM-A-020	-0.00338	CS-137	0.0209367	0.0342	0.02093672	pCi	0.0171	g	ARS-007	MBL	ARS1-B10-01734		U									n				MBL	MB<MDA
ARS1-B10-01742-01	GAM-A-020	34754	AM-241	398.9972	244.3	2521.736	pCi	122.15	g	ARS-007	LCS	ARS1-B10-01742			75	99.72	34896.7	125		0.06					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01742-01	GAM-A-020	25186	CO-60	399.3696	208.3	975.4528	pCi	104.15	g	ARS-007	LCS	ARS1-B10-01742			75	99.19	25394.58	125		0.21					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01742-01	GAM-A-020	15230	CS-137	307.1908	118.6	659.2264	pCi	59.3	g	ARS-007	LCS	ARS1-B10-01742			75	99.12	15365.62	125		0.21					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01742-02	GAM-A-020	34337	AM-241	424.2812	261.2	2510.564	pCi	130.6	g	ARS-007	LCSD	ARS1-B10-01742			75	99.12	34896.7	125	1.4472	0.22	0.12				98	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01742-02	GAM-A-020	25654	CO-60	480.4548	234.8	1025.9228	pCi	117.4	g	ARS-007	LCSD	ARS1-B10-01742			75	99.12	25394.58	125	1.8096	0.25	0.33				101	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01742-02	GAM-A-020	15475	CS-137	355.642	146.9	691.194	pCi	73.45	g	ARS-007	LCSD	ARS1-B10-01742			75	99.12	15365.62	125	1.6281	0.16	0.26				101	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01742-03	GAM-A-020	-0.00304	AM-241	0.0788488	0.0247	0.07884884	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-01742		U									n				MBL	MB<MDA
ARS1-B10-01742-03	GAM-A-020	-0.00597	CO-60	0.0201037	0.0261	0.02010764	pCi	0.01305	g	ARS-007	MBL	ARS1-B10-01742		U									n				MBL	MB<MDA
ARS1-B10-01742-03	GAM-A-020	0.000179	CS-137	0.0086689	0.0168	0.008668884	pCi	0.0084	g	ARS-007	MBL	ARS1-B10-01742		U									n				MBL	MB<MDA
ARS1-B10-01755-01	GAM-A-020	33335	AM-241	421.2628	259.5	2438.828	pCi	129.75	g	ARS-007	LCS	ARS1-B10-01755			75	95.42	34896.7	125		0.64					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01755-01	GAM-A-020	24862	CO-60	660.9708	228.9	1099.3836	pCi	114.45	g	ARS-007	LCS	ARS1-B10-01755			75	98.05	25394.58	125		0.48					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01755-01	GAM-A-020	15070	CS-137	347.8216	146.9	673.848	pCi	73.45	g	ARS-007	LCS	ARS1-B10-01755			75	98.08	15365.62	125		0.44					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01755-02	GAM-A-020	33817	AM-241	412.58	258.2	2405.508	pCi	129.1	g	ARS-007	LCSD	ARS1-B10-01755			75	98.08	34896.7	125	1.4903	0.45	0.14				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01755-02	GAM-A-020	24673	CO-60	435.2768	215.2	984.6256	pCi	107.6	g	ARS-007	LCSD	ARS1-B10-01755			75	98.08	25394.58	125	0.7672	0.73	0.13				97	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01755-02	GAM-A-020	15315	CS-137	333.2784	126.1	714.1064	pCi	63.05	g	ARS-007	LCSD	ARS1-B10-01755			75	98.08	15365.62	125	1.6453	0.07	0.25				100	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01755-03	GAM-A-020	0.002683	AM-241	0.0111353	0.0198	0.011136916	pCi	0.0099	g	ARS-007	MBL	ARS1-B10-01755		U									n				MBL	MB<MDA
ARS1-B10-01755-03	GAM-A-020	0.005465	CO-60	0.0085325	0.0148	0.008539132	pCi	0.0074	g	ARS-007	MBL	ARS1-B10-01755		U									n				MBL	MB<MDA
ARS1-B10-01755-03	GAM-A-020	0.000286	CS-137	0.0075495	0.0148	0.007549528	pCi	0.0074	g	ARS-007	MBL	ARS1-B10-01755		U									n				MBL	MB<MDA
ARS1-B10-01758-01	GAM-A-020	34035	AM-241	422.576	260.4	2488.808	pCi	130.2	g	ARS-007	LCS	ARS1-B10-01758			75	97.43	34896.7	125		0.35					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01758-01	GAM-A-020	25571	CO-60	481.2192	240	1023.708	pCi	120	g	ARS-007	LCS	ARS1-B10-01758			75	100.8	25394.58	125		0.17					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01758-01	GAM-A-020	14951	CS-137	346.7436	138.5	669.4184	pCi	69.25	g	ARS-007	LCS	ARS1-B10-01758			75	97.3	15365.62	125		0.62					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01758-02	GAM-A-020	34651	AM-241	416.8724	259.5	2463.916	pCi	129.75	g	ARS-007	LCSD	ARS1-B10-01758			75	97.3	34896.7	125	2.0378	0.10	0.18				99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01758-02	GAM-A-020	24884	CO-60	438.4324	204	992.7988	pCi	102	g	ARS-007	LCSD	ARS1-B10-01758			75	97.3	25394.58	125	2.7354	0.51	0.48				98	2.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01758-02	GAM-A-020	15137	CS-137	352.8784	149.8	717.0856	pCi	74.9	g	ARS-007	LCSD	ARS1-B10-01758			75	97.3	15365.62	125	1.2629	0.32	0.19				99	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01758-03	GAM-A-020	-0.00243	AM-241	0.0228928	0.0176	0.0228928	pCi	0.0088	g	ARS-007	MBL	ARS1-B10-01758		U									n				MBL	MB<MDA
ARS1-B10-01758-03	GAM-A-020	-0.0039	CO-60	0.0224008	0.0228	0.0224028	pCi	0.0114	g	ARS-007	MBL	ARS1-B10-01758		U									n				MBL	MB<MDA
ARS1-B10-01758-03	GAM-A-020	0.000277	CS-137	0.0082661	0.0155	0.0082663	pCi	0.00775	g	ARS-007	MBL	ARS1-B10-01758		U									n				MBL	MB<MDA
ARS1-B10-01768-01	GAM-A-020	33680	AM-241	431.7096	288.4	2423.736	pCi	144.2	g	ARS-007	LCS	ARS1-B10-01768			75	96.57	34896.7	125		0.50					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01768-01	GAM-A-020	24984	CO-60	453.838	257.3	996.2288	pCi	128.65	g	ARS-007	LCS	ARS1-B10-01768			75	98.37	25394.58	125		0.41					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01768-01	GAM-A-020	15166	CS-137	340.0208	166.9	699.7788	pCi	83.45	g	ARS-007	LCS	ARS1-B10-01768			75	98.73	15365.62	125		0.29					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01768-02	GAM-A-020	34222	AM-241	426.3784	268.5	2435.888	pCi	134.25	g	ARS-007	LCSD	ARS1-B10-01768			75	98.73	34896.7	125	1.4728	0.28	0.16				98	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01768-02	GAM-A-020	24950	CO-60	437.1976	210.1	994.3668	pCi	105.05	g	ARS-007	LCSD	ARS1-B10-01768			75	98.73	25394.58	125	0.1202	0.45	0.02				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01768-02	GAM-A-020	14951	CS-137	327.2808	126.4	698.054	pCi	63.2	g	ARS-007	LCSD	ARS1-B10-01768			75	98.73	15365.62	125	1.4608	0.59	0.22				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01768-03	GAM-A-020	0.005685	AM-241	0.010056	0.0175	0.010064012	pCi	0.00875	g	ARS-007	MBL	ARS1-B10-01768		U									n				MBL	MB<MDA
ARS1-B10-01768-03	GAM-A-020	-0.00223	CO-60	0.0306524	0.0191	0.03065244	pCi	0.00955	g	ARS-007	MBL	ARS1-B10-01768		U									n				MBL	MB<MDA
ARS1-B10-01768-03	GAM-A-020	-0.00051	CS-137	0.0198999	0.017	0.01989988	pCi	0.0085	g	ARS-007	MBL	ARS1-B10-01768		U									n				MBL	MB<MDA
ARS1-B10-01795-01	GAM-A-020	33892	AM-241	438.5108	280.9	2481.36	pCi	140.45	g	ARS-007	LCS	ARS1-B10-01795			75	97.14	34896.7	125		0.40					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01795-01	GAM-A-020	25987	CO-60	482.1012	222.8	1037.0948	pCi	111.4	g	ARS-007	LCS	ARS1-B10-01795			75	102.4	25394.58	125		0.57					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01795-01	GAM-A-020	15063	CS-137	371.6944	178.6	686.2744	pCi	89.3	g	ARS-007	LCS	ARS1-B10-01795			75	98.01	15365.62	125		0.44					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01795-02	GAM-A-020	34605	AM-241	407.9348	244	2459.212	pCi	122	g	ARS-007	LCSD	ARS1-B10-01795			75	98.01	34896.7	125	2.0438	0.12	0.20				99	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01795-02	GAM-A-020	24986	CO-60	439.1184	211.7	996.3856	pCi	105.85	g	ARS-007	LCSD	ARS1-B10-01795			75	98.01	25394.58	125	3.9231	0.41	0.70				98	3.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01795-02	GAM-A-020	14937	CS-137	329.8288	147.4	698.7204	pCi	73.7	g	ARS-007	LCSD	ARS1-B10-01795			75	98.01	15365.62	125	0.8	0.61	0.13				97	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01795-03	GAM-A-020	-0.00399	AM-241	0.0396567	0.0501	0.03965668	pCi	0.02505	g	ARS-007	MBL	ARS1-B10-01795		U									n				MBL	MB<MDA
ARS1-B10-01795-03	GAM-A-020	0.001024	CO-60	0.0101663	0.0197	0.01016652	pCi	0.00985	g	ARS-007	MBL	ARS1-B10-01795		U									n				MBL	MB<MDA
ARS1-B10-01795-03	GAM-A-020	-0.00289	CS-137	0.0161627	0.0172	0.016163728	pCi	0.0086	g	ARS-007	MBL	ARS1-B10-01795		U									n				MBL	MB<MDA
ARS1-B10-01796-01	GAM-A-020	33870	AM-241	410.6788	253.2	2408.84	pCi	126.6	g	ARS-007	LCS	ARS1-B10-01796			75	97.14	34896.7	125		0.43					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01796-01	GAM-A-020	25119	CO-60	440.2944	222.7	1001.168	pCi	111.35	g	ARS-007	LCS	ARS1-B10-01796			75	98.84	25394.58	125		0.28					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01796-01	GAM-A-020	15320	CS-137	331.7496	133.8	713.5968	pCi	66.9	g	ARS-007	LCS	ARS1-B10-01796			75	99.7	15365.62	125		0.06					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01796-02	GAM-A-020	34130	AM-241	422.478	270.9	2453.528	pCi	135.45	g	ARS-007	LCSD	ARS1-B10-01796			75	99.7	34896.7	125	0.5882	0.31	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01796-02	GAM-A-020	24849	CO-60	417.6956	211.1	973.2184	pCi	105.55	g	ARS-007	LCSD	ARS1-B10-01796			75	99.7	25394.58	125	1.0806	0.56	0.19				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01796-02	GAM-A-020	15002	CS-137	310.8168	120.6	653.3268	pCi	60.3	g	ARS-007	LCSD	ARS1-B10-01796			75	99.7	15365.62	125	2.1108	0.56	0.33				98	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01796-03	GAM-A-020	0.005534	AM-241	0.0112249	0.0199	0.01123178	pCi	0.00995	g	ARS-007	MBL	ARS1-B10-01796		U									n				MBL	MB<MDA
ARS1-B10-01796-03	GAM-A-020	0.002911	CO-60	0.0098096	0.0185	0.009811172	pCi	0.00925	g	ARS-007	MBL	ARS1-B10-01796		U									n				MBL	MB<MDA
ARS1-B10-01796-03	GAM-A-020	0.000762	CS-137	0.0072534	0.0139	0.007253568	pCi	0.00695	g	ARS-007	MBL	ARS1-B10-01796		U									n				MBL	MB<MDA
ARS1-B10-01801-01	GAM-A-020	33489	AM-241	429.1224	270.2	2451.176	pCi	135.1	g	ARS-007	LCS	ARS1-B10-01801			75	96	34896.7	125		0.57					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01801-01	GAM-A-020	24691	CO-60	666.008	249.3	1097.6	pCi	124.65	g	ARS-007	LCS	ARS1-B10-01801			75	97.26	25394.58	125		0.64					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01801-01	GAM-A-020	15071	CS-137	358.2684	144.4	679.336	pCi	72.2	g	ARS-007	LCS	ARS1-B10-01801			75	98.08	15365.62	125		0.43					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01801-02	GAM-A-020	33718	AM-241	401.9568	250.5	2421.188	pCi	125.25	g	ARS-007	LCSD	ARS1-B10-01801			75	98.08	34896.7	125	0.5952	0.49	0.07				97	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01801-02	GAM-A-020	24959	CO-60	422.4388	201	977.8636	pCi	100.5	g	ARS-007	LCSD	ARS1-B10-01801			75	98.08	25394.58	125	1.0876	0.45	0.18				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01801-02	GAM-A-020	15195	CS-137	315.3444	117.2	661.8724	pCi	58.6	g	ARS-007	LCSD	ARS1-B10-01801			75	98.08	15365.62	125	0.8589	0.26	0.13				99	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01801-03	GAM-A-020	0.004942	AM-241	0.0124627	0.022	0.012467168	pCi	0.011	g	ARS-007	MBL	ARS1-B10-01801		U									n				MBL	MB<MDA
ARS1-B10-01801-03	GAM-A-020	-0.00419	CO-60	0.0222636	0.0253	0.0222656	pCi	0.01265	g	ARS-007	MBL	ARS1-B10-01801		U									n				MBL	MB<MDA
ARS1-B10-01801-03	GAM-A-020	0.001392	CS-137	0.0083733	0.016	0.008373708	pCi	0.008	g	ARS-007	MBL	ARS1-B10-01801		U									n				MBL	MB<MDA
ARS1-B10-01850-01	GAM-A-020	34191	AM-241	418.3816	262.2	2432.36	pCi	131.1	g	ARS-007	LCS	ARS1-B10-01850			75	98	34896.7	125		0.29					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01850-01	GAM-A-020	14902	CS-137	331.7692	132.5	698.3872	pCi	66.25	g	ARS-007	LCS	ARS1-B10-01850			75	96.97	15365.62	125		0.66					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01850-02	GAM-A-020	34623	AM-241	411.4236	261.9	2514.484	pCi	130.95	g	ARS-007	LCSD	ARS1-B10-01850			75	96.97	34896.7	125	1.1628	0.11	0.12				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > ACT	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01850-02	GAM-A-020	15349	CS-137	305.4856	120.6	662.48	pCi	60.3	g	ARS-007	LCSD	ARS1-B10-01850			75	96.97	15365.62	125	2.9752	0.03	0.46				100	3.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01850-03	GAM-A-020	-0.00209	AM-241	1.0005408	0.0232	1.0005408	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-01850		U										n			MBL	MB<MDA
ARS1-B10-01921-01	GAM-A-020	33535	AM-241	389.452	231.4	2406.488	pCi	115.7	g	ARS-007	LCS	ARS1-B10-01921			75	96	34896.7	125		0.57					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01921-01	GAM-A-020	25343	CO-60	424.1048	203.5	990.8388	pCi	101.75	g	ARS-007	LCS	ARS1-B10-01921			75	99.79	25394.58	125		0.05					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01921-01	GAM-A-020	15250	CS-137	325.7128	130.2	668.7324	pCi	65.1	g	ARS-007	LCS	ARS1-B10-01921			75	99.25	15365.62	125		0.17					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01921-02	GAM-A-020	33710	AM-241	411.3452	261.3	2422.168	pCi	130.65	g	ARS-007	LCSD	ARS1-B10-01921			75	99.25	34896.7	125	0.5952	0.49	0.05				97	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01921-02	GAM-A-020	24572	CO-60	417.7348	204.2	963.5164	pCi	102.1	g	ARS-007	LCSD	ARS1-B10-01921			75	99.25	25394.58	125	3.0856	0.85	0.56				97	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01921-02	GAM-A-020	15037	CS-137	331.436	134.2	664.4596	pCi	67.1	g	ARS-007	LCSD	ARS1-B10-01921			75	99.25	15365.62	125	1.3866	0.49	0.23				98	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01921-03	GAM-A-020	6.88E-05	AM-241	0.0109188	0.0201	0.010918768	pCi	0.01005	g	ARS-007	MBL	ARS1-B10-01921		U										n			MBL	MB<MDA
ARS1-B10-01921-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.00829	0.04084052	pCi	0.004145	g	ARS-007	MBL	ARS1-B10-01921		U										n			MBL	MB<MDA
ARS1-B10-01921-03	GAM-A-020	-0.00147	CS-137	0.0576769	0.0219	0.05767692	pCi	0.01095	g	ARS-007	MBL	ARS1-B10-01921		U										n			MBL	MB<MDA
ARS1-B10-01924-01	GAM-A-020	33730	AM-241	396.4688	235.2	2396.884	pCi	117.6	g	ARS-007	LCS	ARS1-B10-01924			75	96.57	34896.7	125		0.49					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01924-01	GAM-A-020	24652	CO-60	439.4712	229.1	985.8212	pCi	114.55	g	ARS-007	LCS	ARS1-B10-01924			75	97.07	25394.58	125		0.75					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01924-01	GAM-A-020	15167	CS-137	335.6304	130.5	709.814	pCi	65.25	g	ARS-007	LCS	ARS1-B10-01924			75	98.73	15365.62	125		0.28					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01924-02	GAM-A-020	34106	AM-241	402.9172	248.7	2448.432	pCi	124.35	g	ARS-007	LCSD	ARS1-B10-01924			75	98.73	34896.7	125	1.1799	0.32	0.11				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01924-02	GAM-A-020	24845	CO-60	423.752	216.3	974.806	pCi	108.15	g	ARS-007	LCSD	ARS1-B10-01924			75	98.73	25394.58	125	0.8081	0.56	0.14				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01924-02	GAM-A-020	14992	CS-137	315.5796	133.4	655.1888	pCi	66.7	g	ARS-007	LCSD	ARS1-B10-01924			75	98.73	15365.62	125	1.1936	0.57	0.18				98	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01924-03	GAM-A-020	0.004988	AM-241	0.0131195	0.0227	0.013124356	pCi	0.01135	g	ARS-007	MBL	ARS1-B10-01924		U										n			MBL	MB<MDA
ARS1-B10-01924-03	GAM-A-020	-0.00113	CO-60	0.0139364	0.018	0.01393658	pCi	0.009	g	ARS-007	MBL	ARS1-B10-01924		U										n			MBL	MB<MDA
ARS1-B10-01924-03	GAM-A-020	-5.4E-05	CS-137	0.040374	0.0152	0.04037404	pCi	0.0076	g	ARS-007	MBL	ARS1-B10-01924		U										n			MBL	MB<MDA
ARS1-B10-01926-01	GAM-A-020	34806	AM-241	407.6016	246.6	2498.02	pCi	123.3	g	ARS-007	LCS	ARS1-B10-01926			75	99.72	34896.7	125		0.04					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01926-01	GAM-A-020	24976	CO-60	427.6328	224.9	981.568	pCi	112.45	g	ARS-007	LCS	ARS1-B10-01926			75	98.37	25394.58	125		0.43					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01926-01	GAM-A-020	14802	CS-137	309.2684	124.4	645.8396	pCi	62.2	g	ARS-007	LCS	ARS1-B10-01926			75	96.32	15365.62	125		0.87					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01926-02	GAM-A-020	34172	AM-241	433.3952	287.7	2458.232	pCi	143.85	g	ARS-007	LCSD	ARS1-B10-01926			75	96.32	34896.7	125	1.7391	0.29	0.18				98	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01926-02	GAM-A-020	24276	CO-60	431.69	277.1	963.8104	pCi	138.55	g	ARS-007	LCSD	ARS1-B10-01926			75	96.32	25394.58	125	2.8421	1.16	0.51				96	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01926-02	GAM-A-020	15021	CS-137	330.7696	154.1	690.214	pCi	77.05	g	ARS-007	LCSD	ARS1-B10-01926			75	96.32	15365.62	125	1.4755	0.50	0.23				98	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01926-03	GAM-A-020	-0.00258	AM-241	0.1430682	0.0242	0.14306824	pCi	0.0121	g	ARS-007	MBL	ARS1-B10-01926		U										n			MBL	MB<MDA
ARS1-B10-01926-03	GAM-A-020	0.006021	CO-60	0.0079213	0.0138	0.00793016	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-01926		U										n			MBL	MB<MDA
ARS1-B10-01926-03	GAM-A-020	-0.0007	CS-137	0.0256505	0.0177	0.02565052	pCi	0.00885	g	ARS-007	MBL	ARS1-B10-01926		U										n			MBL	MB<MDA
ARS1-B10-01937-01	GAM-A-020	34130	AM-241	397.9584	241.4	2449.412	pCi	120.7	g	ARS-007	LCS	ARS1-B10-01937			75	97.72	34896.7	125		0.31					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01937-01	GAM-A-020	25117	CO-60	424.5164	207.5	983.822	pCi	103.75	g	ARS-007	LCS	ARS1-B10-01937			75	98.92	25394.58	125		0.28					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01937-01	GAM-A-020	15389	CS-137	328.7116	110.7	674.828	pCi	55.35	g	ARS-007	LCS	ARS1-B10-01937			75	100.2	15365.62	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01937-02	GAM-A-020	33977	AM-241	406.8568	248.2	2415.7	pCi	124.1	g	ARS-007	LCSD	ARS1-B10-01937			75	100.2	34896.7	125	0.2937	0.38	0.04				97	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01937-02	GAM-A-020	25275	CO-60	447.1936	242.9	1009.2236	pCi	121.45	g	ARS-007	LCSD	ARS1-B10-01937			75	100.2	25394.58	125	0.6349	0.12	0.11				100	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01937-02	GAM-A-020	14941	CS-137	328.398	123.9	698.2108	pCi	61.95	g	ARS-007	LCSD	ARS1-B10-01937			75	100.2	15365.62	125	2.9674	0.61	0.46				97	3.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01937-03	GAM-A-020	0.006122	AM-241	0.0135358	0.0235	0.01354262	pCi	0.01175	g	ARS-007	MBL	ARS1-B10-01937		U										n			MBL	MB<MDA
ARS1-B10-01937-03	GAM-A-020	-0.00277	CO-60	0.0215894	0.0172	0.0215894	pCi	0.0086	g	ARS-007	MBL	ARS1-B10-01937		U										n			MBL	MB<MDA
ARS1-B10-01937-03	GAM-A-020	0.00485	CS-137	0.0087222	0.0154	0.008727488	pCi	0.0077	g	ARS-007	MBL	ARS1-B10-01937		U										n			MBL	MB<MDA
ARS1-B10-01946-01	GAM-A-020	34001	AM-241	421.4588	258	2486.26	pCi	129	g	ARS-007	LCS	ARS1-B10-01946			75	97.43	34896.7	125		0.36					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-01	GAM-A-020	34001	AM-241	421.4588	258	2486.26	pCi	129	g	ARS-007	LCS	ARS1-B10-01946			75	97.43	34896.7	125		0.36					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-01	GAM-A-020	25533	CO-60	481.4152	248.8	1022.6104	pCi	124.4	g	ARS-007	LCS	ARS1-B10-01946			75	100.4	25394.58	125		0.14					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-01	GAM-A-020	25533	CO-60	481.4152	248.8	1022.6104	pCi	124.4	g	ARS-007	LCS	ARS1-B10-01946			75	100.4	25394.58	125		0.14					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-01	GAM-A-020	14927	CS-137	390.4712	177.3	692.3112	pCi	88.65	g	ARS-007	LCS	ARS1-B10-01946			75	97.16	15365.62	125		0.63					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-01	GAM-A-020	14927	CS-137	390.4712	177.3	692.3112	pCi	88.65	g	ARS-007	LCS	ARS1-B10-01946			75	97.16	15365.62	125		0.63					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-02	GAM-A-020	34208	AM-241	399.6048	250.6	2483.124	pCi	125.3	g	ARS-007	LCSD	ARS1-B10-01946			75	97.16	34896.7	125	0.5865	0.28	0.06				98	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-02	GAM-A-020	34208	AM-241	399.6048	250.6	2483.124	pCi	125.3	g	ARS-007	LCSD	ARS1-B10-01946			75	97.16	34896.7	125	0.5865	0.28	0.06				98	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-02	GAM-A-020	24112	CO-60	553.7196	223.6	1016.1228	pCi	111.8	g	ARS-007	LCSD	ARS1-B10-01946			75	97.16	25394.58	125	5.7212	1.26	0.99				95	5.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-02	GAM-A-020	24112	CO-60	553.7196	223.6	1016.1228	pCi	111.8	g	ARS-007	LCSD	ARS1-B10-01946			75	97.16	25394.58	125	5.7212	1.26	0.99				95	5.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-02	GAM-A-020	15538	CS-137	308.1512	114.2	670.124	pCi	57.1	g	ARS-007	LCSD	ARS1-B10-01946			75	97.16	15365.62	125	4.0039	0.26	0.63				101	4.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-02	GAM-A-020	15538	CS-137	308.1512	114.2	670.124	pCi	57.1	g	ARS-007	LCSD	ARS1-B10-01946			75	97.16	15365.62	125	4.0039	0.26	0.63				101	4.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01946-03	GAM-A-020	-0.00017	AM-241	0.0138846	0.0217	0.013884836	pCi	0.01085	g	ARS-007	MBL	ARS1-B10-01946		U										n			MBL	MB<MDA
ARS1-B10-01946-03	GAM-A-020	-0.00017	AM-241	0.0138846	0.0217	0.013884836	pCi	0.01085	g	ARS-007	MBL	ARS1-B10-01946		U										n			MBL	MB<MDA
ARS1-B10-01946-03	GAM-A-020	-0.00164	CO-60	0.037681	0.0178	0.037681	pCi	0.0089	g	ARS-007	MBL	ARS1-B10-01946		U										n			MBL	MB<MDA
ARS1-B10-01946-03	GAM-A-020	-0.00164	CO-60	0.037681	0.0178	0.037681	pCi	0.0089	g	ARS-007	MBL	ARS1-B10-01946		U										n			MBL	MB<MDA
ARS1-B10-01946-03	GAM-A-020	-0.00147	CS-137	0.0576769	0.0199	0.05767692	pCi	0.00995	g	ARS-007	MBL	ARS1-B10-01946		U										n			MBL	MB<MDA
ARS1-B10-01946-03	GAM-A-020	-0.00147	CS-137	0.0576769	0.0199	0.05767692	pCi	0.00995	g	ARS-007	MBL	ARS1-B10-01946		U										n			MBL	MB<MDA
ARS1-B10-01950-01	GAM-A-020	34247	AM-241	419.5184	264.1	2436.476	pCi	132.05	g	ARS-007	LCS	ARS1-B10-01950			75	98	34896.7	125		0.27					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01950-01	GAM-A-020	24554	CO-60	431.2784	197	979.0396	pCi	98.5	g	ARS-007	LCS	ARS1-B10-01950			75	96.67	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01950-01	GAM-A-020	14933	CS-137	331.6712	139.3	699.4652	pCi	69.65	g	ARS-007	LCS	ARS1-B10-01950			75	97.16	15365.62	125		0.62					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01950-02	GAM-A-020	34353	AM-241	407.974	262.1	2494.688	pCi	131.05	g	ARS-007	LCSD	ARS1-B10-01950			75	97.16	34896.7	125	0.5831	0.22	0.03				98	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01950-02	GAM-A-020	25191	CO-60	400.7808	206.2	976.178	pCi	103.1	g	ARS-007	LCSD	ARS1-B10-01950			75	97.16	25394.58	125	2.5734	0.21	0.46				99	2.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01950-02	GAM-A-020	14866	CS-137	311.9144	134.5	649.1716	pCi	67.25	g	ARS-007	LCSD	ARS1-B10-01950			75	97.16	15365.62	125	0.4027	0.77	0.07				97	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01950-03	GAM-A-020	-0.00134	AM-241	0.1156184	0.0269	0.11561844	pCi	0.01345	g	ARS-007	MBL	ARS1-B10-01950		U										n			MBL	MB<MDA
ARS1-B10-01950-03	GAM-A-020	0.002295	CO-60	0.0090556	0.017	0.009056768	pCi	0.0085	g	ARS-007	MBL	ARS1-B10-01950		U										n			MBL	MB<MDA
ARS1-B10-01950-03	GAM-A-020	-0.00443	CS-137	0.0231358	0.0169	0.0231378	pCi	0.00845	g	ARS-007	MBL	ARS1-B10-01950		U										n			MBL	MB<MDA
ARS1-B10-01963-01	GAM-A-020	34357	AM-241	416.4804	267.5	2468.228	pCi	133.75	g	ARS-007	LCS	ARS1-B10-01963			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	34357	AM-241	416.4804	267.5	2468.228	pCi	133.75	g	ARS-007	LCS	ARS1-B10-01963			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	34357	AM-241	416.4804	267.5	2468.228	pCi	133.75	g	ARS-007	LCS	ARS1-B10-01963			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	24595	CO-60	469.2044	292.4	991.1524	pCi	146.2	g	ARS-007	LCS	ARS1-B10-01963			75	96.87	25394.58	125		0.81					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	24595	CO-60	469.2044	292.4	991.1524	pCi	146.2	g	ARS-007	LCS	ARS1-B10-01963			75	96.87	25394.58	125		0.81					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	24595	CO-60	469.2044	292.4	991.1524	pCi	146.2	g	ARS-007	LCS	ARS1-B10-01963			75	96.87	25394.58	125		0.81					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	14601	CS-137	330.1228	170.2	675.0828	pCi	85.1	g	ARS-007	LCS	ARS1-B10-01963			75	95.02	15365.62	125		1.13					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	14601	CS-137	330.1228	170.2	675.0828	pCi	85.1	g	ARS-007	LCS	ARS1-B10-01963			75	95.02	15365.62	125		1.13					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-01	GAM-A-020	14601	CS-137	330.1228	170.2	675.0828	pCi	85.1	g	ARS-007	LCS	ARS1-B10-01963			75	95.02	15365.62	125		1.13					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	34317	AM-241	428.2012	265.1	2509.78	pCi	132.55	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	34896.7	125	0.2911	0.23	0.01				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	34317	AM-241	428.2012	265.1	2509.78	pCi	132.55	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	34896.7	125	0.2911	0.23	0.01				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	34317	AM-241	428.2012	265.1	2509.78	pCi	132.55	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	34896.7	125	0.2911	0.23	0.01				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	24895	CO-60	671.1432	245.3	1106.4396	pCi	122.65	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	25394.58	125	1.2121	0.45	0.20				98	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	24895	CO-60	671.1432	245.3	1106.4396	pCi	122.65	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	25394.58	125	1.2121	0.45	0.20				98	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	24895	CO-60	671.1432	245.3	1106.4396	pCi	122.65	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	25394.58	125	1.2121	0.45	0.20				98	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	15295	CS-137	378.4368	150.3	697.3876	pCi	75.15	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	15365.62	125	4.6823	0.10	0.72				100	4.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	15295	CS-137	378.4368	150.3	697.3876	pCi	75.15	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	15365.62	125	4.6823	0.10	0.72				100	4.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-02	GAM-A-020	15295	CS-137	378.4368	150.3	697.3876	pCi	75.15	g	ARS-007	LCSD	ARS1-B10-01963			75	95.02	15365.62	125	4.6823	0.10	0.72				100	4.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01963-03	GAM-A-020	-0.00555	AM-241	0.020725	0.0254	0.020727	pCi	0.0127	g	ARS-007	MBL	ARS1-B10-01963		U										n			MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-01963-03	GAM-A-020	-0.00555	AM-241	0.020725	0.0254	0.020727	pCi	0.0127	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01963-03	GAM-A-020	-0.00555	AM-241	0.020725	0.0254	0.020727	pCi	0.0127	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01963-03	GAM-A-020	-0.00251	CO-60	0.0298606	0.0212	0.0298606	pCi	0.0106	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01963-03	GAM-A-020	-0.00251	CO-60	0.0298606	0.0212	0.0298606	pCi	0.0106	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01963-03	GAM-A-020	-0.00251	CO-60	0.0298606	0.0212	0.0298606	pCi	0.0106	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01963-03	GAM-A-020	-0.00058	CS-137	0.1318629	0.0157	0.13186292	pCi	0.00785	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01963-03	GAM-A-020	-0.00058	CS-137	0.1318629	0.0157	0.13186292	pCi	0.00785	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01963-03	GAM-A-020	-0.00058	CS-137	0.1318629	0.0157	0.13186292	pCi	0.00785	g	ARS-007	MBL	ARS1-B10-01963		U									n				MBL	MB<MDA
ARS1-B10-01978-01	GAM-A-020	34463	AM-241	421.4784	265.8	2476.46	pCi	132.9	g	ARS-007	LCS	ARS1-B10-01978			75	98.86	34896.7	125		0.18					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-01	GAM-A-020	34463	AM-241	421.4784	265.8	2476.46	pCi	132.9	g	ARS-007	LCS	ARS1-B10-01978			75	98.86	34896.7	125		0.18					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-01	GAM-A-020	24626	CO-60	413.6384	198.6	964.3592	pCi	99.3	g	ARS-007	LCS	ARS1-B10-01978			75	96.99	25394.58	125		0.80					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-01	GAM-A-020	24626	CO-60	413.6384	198.6	964.3592	pCi	99.3	g	ARS-007	LCS	ARS1-B10-01978			75	96.99	25394.58	125		0.80					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-01	GAM-A-020	14643	CS-137	335.258	162.2	653.464	pCi	81.1	g	ARS-007	LCS	ARS1-B10-01978			75	95.28	15365.62	125		1.11					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-01	GAM-A-020	14643	CS-137	335.258	162.2	653.464	pCi	81.1	g	ARS-007	LCS	ARS1-B10-01978			75	95.28	15365.62	125		1.11					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-02	GAM-A-020	33953	AM-241	431.2588	285.4	2442.552	pCi	142.7	g	ARS-007	LCSD	ARS1-B10-01978			75	95.28	34896.7	125	1.4599	0.39	0.15				97	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-02	GAM-A-020	33953	AM-241	431.2588	285.4	2442.552	pCi	142.7	g	ARS-007	LCSD	ARS1-B10-01978			75	95.28	34896.7	125	1.4599	0.39	0.15				97	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-02	GAM-A-020	24314	CO-60	630.7868	270.8	1069.0232	pCi	135.4	g	ARS-007	LCSD	ARS1-B10-01978			75	95.28	25394.58	125	1.3077	1.01	0.22				96	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-02	GAM-A-020	24314	CO-60	630.7868	270.8	1069.0232	pCi	135.4	g	ARS-007	LCSD	ARS1-B10-01978			75	95.28	25394.58	125	1.3077	1.01	0.22				96	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-02	GAM-A-020	15048	CS-137	342.0396	157.7	696.6232	pCi	78.85	g	ARS-007	LCSD	ARS1-B10-01978			75	95.28	15365.62	125	2.7619	0.46	0.42				98	2.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-02	GAM-A-020	15048	CS-137	342.0396	157.7	696.6232	pCi	78.85	g	ARS-007	LCSD	ARS1-B10-01978			75	95.28	15365.62	125	2.7619	0.46	0.42				98	2.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-01978-03	GAM-A-020	-0.00019	AM-241	0.0161916	0.0245	0.01619156	pCi	0.01225	g	ARS-007	MBL	ARS1-B10-01978		U									n				MBL	MB<MDA
ARS1-B10-01978-03	GAM-A-020	-0.00019	AM-241	0.0161916	0.0245	0.01619156	pCi	0.01225	g	ARS-007	MBL	ARS1-B10-01978		U									n				MBL	MB<MDA
ARS1-B10-01978-03	GAM-A-020	-0.00104	CO-60	6.695164	0.0159	6.695164	pCi	0.00795	g	ARS-007	MBL	ARS1-B10-01978		U									n				MBL	MB<MDA
ARS1-B10-01978-03	GAM-A-020	-0.00104	CO-60	6.695164	0.0159	6.695164	pCi	0.00795	g	ARS-007	MBL	ARS1-B10-01978		U									n				MBL	MB<MDA
ARS1-B10-01978-03	GAM-A-020	-0.00248	CS-137	0.0404446	0.0196	0.0404446	pCi	0.0098	g	ARS-007	MBL	ARS1-B10-01978		U									n				MBL	MB<MDA
ARS1-B10-01978-03	GAM-A-020	-0.00248	CS-137	0.0404446	0.0196	0.0404446	pCi	0.0098	g	ARS-007	MBL	ARS1-B10-01978		U									n				MBL	MB<MDA
ARS1-B10-02001-01	GAM-A-020	33609	AM-241	409.7772	244	2456.468	pCi	122	g	ARS-007	LCS	ARS1-B10-02001			75	96.28	34896.7	125		0.52					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	33609	AM-241	409.7772	244	2456.468	pCi	122	g	ARS-007	LCS	ARS1-B10-02001			75	96.28	34896.7	125		0.52					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	33609	AM-241	409.7772	244	2456.468	pCi	122	g	ARS-007	LCS	ARS1-B10-02001			75	96.28	34896.7	125		0.52					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	25381	CO-60	485.1	273	1019.6116	pCi	136.5	g	ARS-007	LCS	ARS1-B10-02001			75	100	25394.58	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	25381	CO-60	485.1	273	1019.6116	pCi	136.5	g	ARS-007	LCS	ARS1-B10-02001			75	100	25394.58	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	25381	CO-60	485.1	273	1019.6116	pCi	136.5	g	ARS-007	LCS	ARS1-B10-02001			75	100	25394.58	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	15213	CS-137	349.3308	137.5	679.3556	pCi	68.75	g	ARS-007	LCS	ARS1-B10-02001			75	98.99	15365.62	125		0.22					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	15213	CS-137	349.3308	137.5	679.3556	pCi	68.75	g	ARS-007	LCS	ARS1-B10-02001			75	98.99	15365.62	125		0.22					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-01	GAM-A-020	15213	CS-137	349.3308	137.5	679.3556	pCi	68.75	g	ARS-007	LCS	ARS1-B10-02001			75	98.99	15365.62	125		0.22					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	34291	AM-241	394.4108	243.2	2488.22	pCi	121.6	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	34896.7	125	2.0619	0.24	0.20				98	2.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	34291	AM-241	394.4108	243.2	2488.22	pCi	121.6	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	34896.7	125	2.0619	0.24	0.20				98	2.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	34291	AM-241	394.4108	243.2	2488.22	pCi	121.6	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	34896.7	125	2.0619	0.24	0.20				98	2.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	25351	CO-60	416.9508	160.5	988.0556	pCi	80.25	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	25394.58	125	0.1183	0.04	0.02				100	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	25351	CO-60	416.9508	160.5	988.0556	pCi	80.25	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	25394.58	125	0.1183	0.04	0.02				100	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	25351	CO-60	416.9508	160.5	988.0556	pCi	80.25	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	25394.58	125	0.1183	0.04	0.02				100	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	15286	CS-137	305.9756	126.3	660.5592	pCi	63.15	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	15365.62	125	0.5246	0.12	0.08				99	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	15286	CS-137	305.9756	126.3	660.5592	pCi	63.15	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	15365.62	125	0.5246	0.12	0.08				99	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-02	GAM-A-020	15286	CS-137	305.9756	126.3	660.5592	pCi	63.15	g	ARS-007	LCSD	ARS1-B10-02001			75	98.99	15365.62	125	0.5246	0.12	0.08				99	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02001-03	GAM-A-020	0.004469	AM-241	0.0105411	0.0189	0.01054578	pCi	0.00945	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.004469	AM-241	0.0105411	0.0189	0.01054578	pCi	0.00945	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.004469	AM-241	0.0105411	0.0189	0.01054578	pCi	0.00945	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.003907	CO-60	0.0101648	0.0187	0.0101675	pCi	0.00935	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.003907	CO-60	0.0101648	0.0187	0.0101675	pCi	0.00935	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.003907	CO-60	0.0101648	0.0187	0.0101675	pCi	0.00935	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.004105	CS-137	0.0083672	0.0148	0.00837116	pCi	0.0074	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.004105	CS-137	0.0083672	0.0148	0.00837116	pCi	0.0074	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02001-03	GAM-A-020	0.004105	CS-137	0.0083672	0.0148	0.00837116	pCi	0.0074	g	ARS-007	MBL	ARS1-B10-02001		U									n				MBL	MB<MDA
ARS1-B10-02003-01	GAM-A-020	34150	AM-241	390.9024	241.4	2477.636	pCi	120.7	g	ARS-007	LCS	ARS1-B10-02003			75	98	34896.7	125		0.30					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02003-01	GAM-A-020	24917	CO-60	406.8176	194.4	969.8864	pCi	97.2	g	ARS-007	LCS	ARS1-B10-02003			75	98.13	25394.58	125		0.49					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02003-01	GAM-A-020	15404	CS-137	306.1324	123.8	664.6556	pCi	61.9	g	ARS-007	LCS	ARS1-B10-02003			75	100.2	15365.62	125		0.06					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02003-02	GAM-A-020	34419	AM-241	417.0292	262.2	2447.844	pCi	131.1	g	ARS-007	LCSD	ARS1-B10-02003			75	100.2	34896.7	125	0.5831	0.20	0.08				99	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02003-02	GAM-A-020	24824	CO-60	443.1168	223.1	992.9556	pCi	111.55	g	ARS-007	LCSD	ARS1-B10-02003			75	100.2	25394.58	125	0.4021	0.57	0.07				98	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02003-02	GAM-A-020	15163	CS-137	332.22	132.8	708.0696	pCi	66.4	g	ARS-007	LCSD	ARS1-B10-02003			75	100.2	15365.62	125	1.5707	0.29	0.25				99	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02003-03	GAM-A-020	-0.00111	AM-241	0.3720668	0.0244	0.3720668	pCi	0.0122	g	ARS-007	MBL	ARS1-B10-02003		U									n				MBL	MB<MDA
ARS1-B10-02003-03	GAM-A-020	-0.00276	CO-60	0.0089533	0.0167	0.008955044	pCi	0.00835	g	ARS-007	MBL	ARS1-B10-02003		U									n				MBL	MB<MDA
ARS1-B10-02003-03	GAM-A-020	-0.00198	CS-137	0.0775729	0.0135	0.07757288	pCi	0.00675	g	ARS-007	MBL	ARS1-B10-02003		U									n				MBL	MB<MDA
ARS1-B10-02004-01	GAM-A-020	33727	AM-241	423.5168	272.1	2401.196	pCi	136.05	g	ARS-007	LCS	ARS1-B10-02004			75	96.57	34896.7	125		0.49					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02004-01	GAM-A-020	25144	CO-60	436.1784	200.4	1000.1488	pCi	100.2	g	ARS-007	LCS	ARS1-B10-02004			75	98.84	25394.58	125		0.25					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02004-01	GAM-A-020	15005	CS-137	329.6328	136.4	701.1116	pCi	68.2	g	ARS-007	LCS	ARS1-B10-02004			75	97.69	15365.62	125		0.51					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02004-02	GAM-A-020	34431	AM-241	412.09	264.8	2500.96	pCi	132.4	g	ARS-007	LCSD	ARS1-B10-02004			75	97.69	34896.7	125	2.0558	0.19	0.20				99	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02004-02	GAM-A-020	25316	CO-60	404.2892	199.7	981.6464	pCi	99.85	g	ARS-007	LCSD	ARS1-B10-02004			75	97.69	25394.58	125	0.7134	0.08	0.12				100	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02004-02	GAM-A-020	15135	CS-137	299.1156	112.4	652.288	pCi	56.2	g	ARS-007	LCSD	ARS1-B10-02004			75	97.69	15365.62	125	0.8624	0.35	0.14				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02004-03	GAM-A-020	-0.0099	AM-241	0.0290119	0.0408	0.02901976	pCi	0.0204	g	ARS-007	MBL	ARS1-B10-02004		U									n				MBL	MB<MDA
ARS1-B10-02004-03	GAM-A-020	-0.00116	CO-60	0.0453485	0.00719	0.04534852	pCi	0.003595	g	ARS-007	MBL	ARS1-B10-02004		U									n				MBL	MB<MDA
ARS1-B10-02004-03	GAM-A-020	-0.00019	CS-137	0.0145671	0.013	0.014567112	pCi	0.0065	g	ARS-007	MBL	ARS1-B10-02004		U									n				MBL	MB<MDA
ARS1-B10-02022-01	GAM-A-020	33930	AM-241	426.1432	264.4	2481.948	pCi	132.2	g	ARS-007	LCS	ARS1-B10-02022			75	97.14	34896.7	125		0.39					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02022-01	GAM-A-020	25504	CO-60	482.2776	260.9	1022.1008	pCi	130.45	g	ARS-007	LCS	ARS1-B10-02022			75	100.4	25394.58	125		0.11					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02022-01	GAM-A-020	15499	CS-137	358.4056	136.9	693.4088	pCi	68.45	g	ARS-007	LCS	ARS1-B10-02022			75	100.9	15365.62	125		0.19					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02022-02	GAM-A-020	33695	AM-241	391.902	236.2	2417.856	pCi	118.1	g	ARS-007	LCSD	ARS1-B10-02022			75	100.9	34896.7	125	0.5917	0.50	0.07				97	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02022-02	GAM-A-020	24846	CO-60	424.34	220	975.1	pCi	110	g	ARS-007	LCSD	ARS1-B10-02022			75	100.9	25394.58	125	2.5819	0.56	0.47				98	2.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02022-02	GAM-A-020	15105	CS-137	316.8732	123.8	659.5988	pCi	61.9	g	ARS-007	LCSD	ARS1-B10-02022			75	100.9	15365.62	125	2.5482	0.40	0.41				98	2.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02022-03	GAM-A-020	0.002516	AM-241	0.01221	0.0219	0.012211192	pCi	0.01095	g	ARS-007	MBL	ARS1-B10-02022		U									n				MBL	MB<MDA
ARS1-B10-02022-03	GAM-A-020	0.000141	CO-60	0.0096342	0.0196	0.009634184	pCi	0.0098	g	ARS-007	MBL	ARS1-B10-02022		U									n				MBL	MB<MDA
ARS1-B10-02023-01	GAM-A-020	33584	AM-241	425.3396	266.2	2457.252	pCi	133.1	g	ARS-007	LCS	ARS1-B10-02023			75	96.28	34896.7	125		0.53					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-01	GAM-A-020	33584	AM-241	425.3396	266.2	2457.252	pCi	133.1	g	ARS-007	LCS	ARS1-B10-02023			75	96.28	34896.7	125		0.53					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-01	GAM-A-020	25785	CO-60	480.1608	218	1029.882	pCi	109	g	ARS-007	LCS	ARS1-B10-02023			75	101.6	25394.58	125		0.38					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-01	GAM-A-020	25785	CO-60	480.1608	218	1029.882	pCi	109	g	ARS-007	LCS	ARS1-B10-02023			75	101.6	25394.58	125		0.38					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-01	GAM-A-020	15233	CS-137	363.1684	166	687.1956	pCi	83	g	ARS-007	LCS	ARS1-B10-02023			75	99.12	15365.62	125		0.19					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	CheckRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-02023-01	GAM-A-020	15233	CS-137	363.1684	166	687.1956	pCi	83	g	ARS-007	LCS	ARS1-B10-02023			75	99.12	15365.62	125		0.19					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-02	GAM-A-020	34103	AM-241	399.6244	240.6	2447.648	pCi	120.3	g	ARS-007	LCSD	ARS1-B10-02023			75	99.12	34896.7	125	1.4771	0.32	0.15				98	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-02	GAM-A-020	34103	AM-241	399.6244	240.6	2447.648	pCi	120.3	g	ARS-007	LCSD	ARS1-B10-02023			75	99.12	34896.7	125	1.4771	0.32	0.15				98	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-02	GAM-A-020	24287	CO-60	576.5928	193.5	1033.8804	pCi	96.75	g	ARS-007	LCSD	ARS1-B10-02023			75	99.12	25394.58	125	5.9904	1.07	1.03				96	6.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-02	GAM-A-020	24287	CO-60	576.5928	193.5	1033.8804	pCi	96.75	g	ARS-007	LCSD	ARS1-B10-02023			75	99.12	25394.58	125	5.9904	1.07	1.03				96	6.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-02	GAM-A-020	15141	CS-137	315.9324	108.5	660.3632	pCi	54.25	g	ARS-007	LCSD	ARS1-B10-02023			75	99.12	15365.62	125	0.5927	0.34	0.10				99	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-02	GAM-A-020	15141	CS-137	315.9324	108.5	660.3632	pCi	54.25	g	ARS-007	LCSD	ARS1-B10-02023			75	99.12	15365.62	125	0.5927	0.34	0.10				99	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02023-03	GAM-A-020	0.013528	AM-241	0.0133607	0.0223	0.013395032	pCi	0.01115	g	ARS-007	MBL	ARS1-B10-02023		U									n				MBL	MB<MDA
ARS1-B10-02023-03	GAM-A-020	0.013528	AM-241	0.0133607	0.0223	0.013395032	pCi	0.01115	g	ARS-007	MBL	ARS1-B10-02023		U									n				MBL	MB<MDA
ARS1-B10-02023-03	GAM-A-020	0	CO-60	0.0018703	0.00703	0.001870271	pCi	0.003515	g	ARS-007	MBL	ARS1-B10-02023		U									n				MBL	MB<MDA
ARS1-B10-02023-03	GAM-A-020	0	CO-60	0.0018703	0.00703	0.001870271	pCi	0.003515	g	ARS-007	MBL	ARS1-B10-02023		U									n				MBL	MB<MDA
ARS1-B10-02023-03	GAM-A-020	-0.00048	CS-137	0.0105975	0.0133	0.010597524	pCi	0.00665	g	ARS-007	MBL	ARS1-B10-02023		U									n				MBL	MB<MDA
ARS1-B10-02023-03	GAM-A-020	-0.00048	CS-137	0.0105975	0.0133	0.010597524	pCi	0.00665	g	ARS-007	MBL	ARS1-B10-02023		U									n				MBL	MB<MDA
ARS1-B10-02042-01	GAM-A-020	34157	AM-241	418.2444	267	2454.508	pCi	133.5	g	ARS-007	LCS	ARS1-B10-02042			75	98	34896.7	125		0.30					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-01	GAM-A-020	34157	AM-241	418.2444	267	2454.508	pCi	133.5	g	ARS-007	LCS	ARS1-B10-02042			75	98	34896.7	125		0.30					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-01	GAM-A-020	24425	CO-60	581.6104	204.1	1041.544	pCi	102.05	g	ARS-007	LCS	ARS1-B10-02042			75	96.08	25394.58	125		0.93					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-01	GAM-A-020	24425	CO-60	581.6104	204.1	1041.544	pCi	102.05	g	ARS-007	LCS	ARS1-B10-02042			75	96.08	25394.58	125		0.93					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-01	GAM-A-020	14843	CS-137	356.6024	123.8	671.1432	pCi	61.9	g	ARS-007	LCS	ARS1-B10-02042			75	96.58	15365.62	125		0.78					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-01	GAM-A-020	14843	CS-137	356.6024	123.8	671.1432	pCi	61.9	g	ARS-007	LCS	ARS1-B10-02042			75	96.58	15365.62	125		0.78					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-02	GAM-A-020	33807	AM-241	422.8504	270	2406.684	pCi	135	g	ARS-007	LCSD	ARS1-B10-02042			75	96.58	34896.7	125	1.1765	0.45	0.10				97	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-02	GAM-A-020	33807	AM-241	422.8504	270	2406.684	pCi	135	g	ARS-007	LCSD	ARS1-B10-02042			75	96.58	34896.7	125	1.1765	0.45	0.10				97	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-02	GAM-A-020	24336	CO-60	619.8892	268.7	1069.18	pCi	134.35	g	ARS-007	LCSD	ARS1-B10-02042			75	96.58	25394.58	125	0.3691	0.99	0.06				96	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-02	GAM-A-020	24336	CO-60	619.8892	268.7	1069.18	pCi	134.35	g	ARS-007	LCSD	ARS1-B10-02042			75	96.58	25394.58	125	0.3691	0.99	0.06				96	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-02	GAM-A-020	15248	CS-137	333.1216	141.9	711.578	pCi	70.95	g	ARS-007	LCSD	ARS1-B10-02042			75	96.58	15365.62	125	2.7252	0.17	0.41				99	2.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-02	GAM-A-020	15248	CS-137	333.1216	141.9	711.578	pCi	70.95	g	ARS-007	LCSD	ARS1-B10-02042			75	96.58	15365.62	125	2.7252	0.17	0.41				99	2.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02042-03	GAM-A-020	-0.00381	AM-241	0.0140587	0.0245	0.014061236	pCi	0.01225	g	ARS-007	MBL	ARS1-B10-02042		U									n				MBL	MB<MDA
ARS1-B10-02042-03	GAM-A-020	-0.00381	AM-241	0.0140587	0.0245	0.014061236	pCi	0.01225	g	ARS-007	MBL	ARS1-B10-02042		U									n				MBL	MB<MDA
ARS1-B10-02042-03	GAM-A-020	-0.00021	CO-60	0.0084168	0.0232	0.008416828	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-02042		U									n				MBL	MB<MDA
ARS1-B10-02042-03	GAM-A-020	-0.00021	CO-60	0.0084168	0.0232	0.008416828	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-02042		U									n				MBL	MB<MDA
ARS1-B10-02042-03	GAM-A-020	-8.1E-05	CS-137	0.003176	0.017	0.003175984	pCi	0.0085	g	ARS-007	MBL	ARS1-B10-02042		U									n				MBL	MB<MDA
ARS1-B10-02042-03	GAM-A-020	-8.1E-05	CS-137	0.003176	0.017	0.003175984	pCi	0.0085	g	ARS-007	MBL	ARS1-B10-02042		U									n				MBL	MB<MDA
ARS1-B10-02049-01	GAM-A-020	35495	AM-241	389.6676	191.1	2587.396	pCi	95.55	g	ARS-007	LCS	ARS1-B10-02049			75	101.7	34896.7	125		0.23					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-01	GAM-A-020	35495	AM-241	389.6676	191.1	2587.396	pCi	95.55	g	ARS-007	LCS	ARS1-B10-02049			75	101.7	34896.7	125		0.23					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-01	GAM-A-020	25434	CO-60	486.1584	253.1	1021.7872	pCi	126.55	g	ARS-007	LCS	ARS1-B10-02049			75	100	25394.58	125		0.04					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-01	GAM-A-020	25434	CO-60	486.1584	253.1	1021.7872	pCi	126.55	g	ARS-007	LCS	ARS1-B10-02049			75	100	25394.58	125		0.04					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-01	GAM-A-020	15278	CS-137	365.3636	148.4	689.822	pCi	74.2	g	ARS-007	LCS	ARS1-B10-02049			75	99.44	15365.62	125		0.13					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-01	GAM-A-020	15278	CS-137	365.3636	148.4	689.822	pCi	74.2	g	ARS-007	LCS	ARS1-B10-02049			75	99.44	15365.62	125		0.13					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-02	GAM-A-020	34675	AM-241	414.4224	253.6	2465.092	pCi	126.8	g	ARS-007	LCSD	ARS1-B10-02049			75	99.44	34896.7	125	2.2792	0.09	0.23				99	2.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-02	GAM-A-020	34675	AM-241	414.4224	253.6	2465.092	pCi	126.8	g	ARS-007	LCSD	ARS1-B10-02049			75	99.44	34896.7	125	2.2792	0.09	0.23				99	2.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-02	GAM-A-020	25183	CO-60	439.9612	210.4	1003.0888	pCi	105.2	g	ARS-007	LCSD	ARS1-B10-02049			75	99.44	25394.58	125	0.9879	0.21	0.18				99	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-02	GAM-A-020	25183	CO-60	439.9612	210.4	1003.0888	pCi	105.2	g	ARS-007	LCSD	ARS1-B10-02049			75	99.44	25394.58	125	0.9879	0.21	0.18				99	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-02	GAM-A-020	15031	CS-137	327.908	131.8	701.2488	pCi	65.9	g	ARS-007	LCSD	ARS1-B10-02049			75	99.44	15365.62	125	1.6496	0.48	0.25				98	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-02	GAM-A-020	15031	CS-137	327.908	131.8	701.2488	pCi	65.9	g	ARS-007	LCSD	ARS1-B10-02049			75	99.44	15365.62	125	1.6496	0.48	0.25				98	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02049-03	GAM-A-020	-0.00129	AM-241	0.1463767	0.0344	0.14637672	pCi	0.0172	g	ARS-007	MBL	ARS1-B10-02049		U									n				MBL	MB<MDA
ARS1-B10-02049-03	GAM-A-020	-0.00129	AM-241	0.1463767	0.0344	0.14637672	pCi	0.0172	g	ARS-007	MBL	ARS1-B10-02049		U									n				MBL	MB<MDA
ARS1-B10-02049-03	GAM-A-020	-0.00378	CO-60	0.0184879	0.0189	0.018489464	pCi	0.00945	g	ARS-007	MBL	ARS1-B10-02049		U									n				MBL	MB<MDA
ARS1-B10-02049-03	GAM-A-020	-0.00378	CO-60	0.0184879	0.0189	0.018489464	pCi	0.00945	g	ARS-007	MBL	ARS1-B10-02049		U									n				MBL	MB<MDA
ARS1-B10-02049-03	GAM-A-020	-0.0007	CS-137	0.051595	0.0155	0.05159504	pCi	0.00775	g	ARS-007	MBL	ARS1-B10-02049		U									n				MBL	MB<MDA
ARS1-B10-02049-03	GAM-A-020	-0.0007	CS-137	0.051595	0.0155	0.05159504	pCi	0.00775	g	ARS-007	MBL	ARS1-B10-02049		U									n				MBL	MB<MDA
ARS1-B10-02058-01	GAM-A-020	33419	AM-241	429.142	280.8	2381.008	pCi	140.4	g	ARS-007	LCS	ARS1-B10-02058			75	95.71	34896.7	125		0.62					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02058-01	GAM-A-020	24604	CO-60	440.4904	243.1	984.7236	pCi	121.55	g	ARS-007	LCS	ARS1-B10-02058			75	96.87	25394.58	125		0.80					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02058-01	GAM-A-020	15305	CS-137	336.5516	144.8	715.2628	pCi	72.4	g	ARS-007	LCS	ARS1-B10-02058			75	99.64	15365.62	125		0.08					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02058-02	GAM-A-020	33865	AM-241	411.2276	259.6	2432.948	pCi	129.8	g	ARS-007	LCSD	ARS1-B10-02058			75	99.64	34896.7	125	1.4859	0.42	0.13				97	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02058-02	GAM-A-020	24804	CO-60	422.7328	207.1	973.0812	pCi	103.55	g	ARS-007	LCSD	ARS1-B10-02058			75	99.64	25394.58	125	0.8097	0.61	0.14				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02058-02	GAM-A-020	15510	CS-137	318.0688	101.1	673.7892	pCi	50.55	g	ARS-007	LCSD	ARS1-B10-02058			75	99.64	15365.62	125	1.2979	0.21	0.21				101	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02058-03	GAM-A-020	-0.00943	AM-241	0.0182139	0.0252	0.018226236	pCi	0.0126	g	ARS-007	MBL	ARS1-B10-02058		U									n				MBL	MB<MDA
ARS1-B10-02058-03	GAM-A-020	-0.00166	CO-60	0.0091026	0.0173	0.00910322	pCi	0.00865	g	ARS-007	MBL	ARS1-B10-02058		U									n				MBL	MB<MDA
ARS1-B10-02058-03	GAM-A-020	-0.00361	CS-137	0.0270382	0.0155	0.0270382	pCi	0.00775	g	ARS-007	MBL	ARS1-B10-02058		U									n				MBL	MB<MDA
ARS1-B10-02070-01	GAM-A-020	34159	AM-241	431.5724	268.9	2499.196	pCi	134.45	g	ARS-007	LCS	ARS1-B10-02070			75	98	34896.7	125		0.30					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02070-01	GAM-A-020	25001	CO-60	477.2208	228.3	1004.0492	pCi	114.15	g	ARS-007	LCS	ARS1-B10-02070			75	98.45	25394.58	125		0.39					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02070-01	GAM-A-020	14770	CS-137	357.7392	163.8	669.3008	pCi	81.9	g	ARS-007	LCS	ARS1-B10-02070			75	96.12	15365.62	125		0.89					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02070-02	GAM-A-020	34195	AM-241	418.1856	267.4	2457.252	pCi	133.7	g	ARS-007	LCSD	ARS1-B10-02070			75	96.12	34896.7	125	0	0.29	0.01				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02070-02	GAM-A-020	24651	CO-60	458.1696	239.9	987.742	pCi	119.95	g	ARS-007	LCSD	ARS1-B10-02070			75	96.12	25394.58	125	1.4099	0.75	0.25				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02070-02	GAM-A-020	14458	CS-137	354.8188	178.2	682.5504	pCi	89.1	g	ARS-007	LCSD	ARS1-B10-02070			75	96.12	15365.62	125	2.1211	1.33	0.33				94	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02070-03	GAM-A-020	-0.00828	AM-241	0.0242491	0.0252	0.024255	pCi	0.0126	g	ARS-007	MBL	ARS1-B10-02070		U									n				MBL	MB<MDA
ARS1-B10-02070-03	GAM-A-020	0.001711	CO-60	0.01136	0.0219	0.011360356	pCi	0.01095	g	ARS-007	MBL	ARS1-B10-02070		U									n				MBL	MB<MDA
ARS1-B10-02070-03	GAM-A-020	-0.00089	CS-137	0.0390922	0.0188	0.0390922	pCi	0.0094	g	ARS-007	MBL	ARS1-B10-02070		U									n				MBL	MB<MDA
ARS1-B10-02071-01	GAM-A-020	33032	AM-241	393.8816	243.6	2371.992	pCi	121.8	g	ARS-007	LCS	ARS1-B10-02071			75	94.56	34896.7	125		0.79					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-01	GAM-A-020	33032	AM-241	393.8816	243.6	2371.992	pCi	121.8	g	ARS-007	LCS	ARS1-B10-02071			75	94.56	34896.7	125		0.79					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-01	GAM-A-020	24225	CO-60	663.362	277.3	1082.9588	pCi	138.65	g	ARS-007	LCS	ARS1-B10-02071			75	95.3	25394.58	125		1.08					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-01	GAM-A-020	24225	CO-60	663.362	277.3	1082.9588	pCi	138.65	g	ARS-007	LCS	ARS1-B10-02071			75	95.3	25394.58	125		1.08					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-01	GAM-A-020	14658	CS-137	316.6184	134.6	644.5264	pCi	67.3	g	ARS-007	LCS	ARS1-B10-02071			75	95.41	15365.62	125		1.10					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-01	GAM-A-020	14658	CS-137	316.6184	134.6	644.5264	pCi	67.3	g	ARS-007	LCS	ARS1-B10-02071			75	95.41	15365.62	125		1.10					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-02	GAM-A-020	34594	AM-241	415.5984	257.1	2459.8	pCi	128.55	g	ARS-007	LCSD	ARS1-B10-02071			75	95.41	34896.7	125	4.7337	0.12	0.46				99	4.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-02	GAM-A-020	34594	AM-241	415.5984	257.1	2459.8	pCi	128.55	g	ARS-007	LCSD	ARS1-B10-02071			75	95.41	34896.7	125	4.7337	0.12	0.46				99	4.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-02	GAM-A-020	25072	CO-60	446.1352	246.3	1002.246	pCi	123.15	g	ARS-007	LCSD	ARS1-B10-02071			75	95.41	25394.58	125	3.4077	0.32	0.57				99	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-02	GAM-A-020	25072	CO-60	446.1352	246.3	1002.246	pCi	123.15	g	ARS-007	LCSD	ARS1-B10-02071			75	95.41	25394.58	125	3.4077	0.32	0.57				99	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-02	GAM-A-020	14759	CS-137	326.34	122.9	690.606	pCi	61.45	g	ARS-007	LCSD	ARS1-B10-02071			75	95.41	15365.62	125	0.6798	0.88	0.11				96	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-02	GAM-A-020	14759	CS-137	326.34	122.9	690.606	pCi	61.45	g	ARS-007	LCSD	ARS1-B10-02071			75	95.41	15365.62	125	0.6798	0.88	0.11				96	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02071-03	GAM-A-020	0.003661	AM-241	0.0138107	0.0242	0.013813296	pCi	0.0121	g	ARS-007	MBL	ARS1-B10-02071		U									n				MBL	MB<MDA
ARS1-B10-02071-03	GAM-A-020	0.003661	AM-241	0.0138107	0.0242	0.013813296	pCi	0.0121	g	ARS-007	MBL	ARS1-B10-02071		U									n				MBL	MB<MDA
ARS1-B10-02071-03	GAM-A-020	-0.00296	CO-60	0.0249136	0.0205	0.02491552	pCi	0.01025	g	ARS-007	MBL	ARS1-B10-02071		U									n				MBL	MB<MDA
ARS1-B10-02071-03	GAM-A-020	-0.00296	CO-60	0.0249136	0.0205	0.02491552	pCi	0.01025	g	ARS-007	MBL	ARS1-B10-02071		U									n				MBL	MB<MDA
ARS1-B10-02071-03	GAM-A-020	-0.00294	CS-137	0.0136986	0.0149	0.013699812	pCi	0.00745	g	ARS-007	MBL	ARS1-B10-02071		U									n				MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological																											March 2011
ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	ChemRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)) MARLAP	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-02071-03	GAM-A-020	-0.00294	CS-137	0.0136986	0.0149	0.013699812	pCi	0.00745	g	ARS-007	MBL	ARS1-B10-02071		U									n			MBL	MB<MDA
ARS1-B10-02073-01	GAM-A-020	34693	AM-241	408.6796	244.8	2465.484	pCi	122.4	g	ARS-007	LCS	ARS1-B10-02073			75	99.44	34896.7	125		0.08				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02073-01	GAM-A-020	24295	CO-60	436.8056	236.7	973.1792	pCi	118.35	g	ARS-007	LCS	ARS1-B10-02073			75	95.69	25394.58	125		1.13				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02073-01	GAM-A-020	14643	CS-137	358.1508	156.5	702.072	pCi	78.25	g	ARS-007	LCS	ARS1-B10-02073			75	95.28	15365.62	125		1.03				95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02073-02	GAM-A-020	34240	AM-241	431.788	284.1	2462.74	pCi	142.05	g	ARS-007	LCSD	ARS1-B10-02073			75	95.28	34896.7	125	1.4514	0.27	0.13			98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02073-02	GAM-A-020	24902	CO-60	460.2864	271.3	996.6012	pCi	135.65	g	ARS-007	LCSD	ARS1-B10-02073			75	95.28	25394.58	125	2.439	0.49	0.44			98	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02073-02	GAM-A-020	15116	CS-137	328.986	138.4	692.7424	pCi	69.2	g	ARS-007	LCSD	ARS1-B10-02073			75	95.28	15365.62	125	3.2258	0.36	0.48			98	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02073-03	GAM-A-020	-0.00202	AM-241	0.0336591	0.0199	0.03365908	pCi	0.00995	g	ARS-007	MBL	ARS1-B10-02073		U									n			MBL	MB<MDA
ARS1-B10-02073-03	GAM-A-020	0.00013	CO-60	0.0072812	0.0148	0.007281204	pCi	0.0074	g	ARS-007	MBL	ARS1-B10-02073		U									n			MBL	MB<MDA
ARS1-B10-02073-03	GAM-A-020	-7.3E-05	CS-137	0.0082375	0.0151	0.008237488	pCi	0.00755	g	ARS-007	MBL	ARS1-B10-02073		U									n			MBL	MB<MDA
ARS1-B10-02081-01	GAM-A-020	34321	AM-241	413.5208	255.1	2440.592	pCi	127.55	g	ARS-007	LCS	ARS1-B10-02081			75	98.29	34896.7	125		0.24				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02081-01	GAM-A-020	24902	CO-60	435.2572	210.6	991.9756	pCi	105.3	g	ARS-007	LCS	ARS1-B10-02081			75	98.05	25394.58	125		0.50				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02081-01	GAM-A-020	15145	CS-137	331.926	143.1	707.2856	pCi	71.55	g	ARS-007	LCS	ARS1-B10-02081			75	98.6	15365.62	125		0.31				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02081-02	GAM-A-020	33821	AM-241	408.0328	258.1	2429.42	pCi	129.05	g	ARS-007	LCSD	ARS1-B10-02081			75	98.6	34896.7	125	1.4684	0.44	0.15			97	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02081-02	GAM-A-020	24728	CO-60	416.794	188.4	968.0832	pCi	94.2	g	ARS-007	LCSD	ARS1-B10-02081			75	98.6	25394.58	125	0.6851	0.69	0.13			97	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02081-02	GAM-A-020	15130	CS-137	327.0652	130.7	665.4004	pCi	65.35	g	ARS-007	LCSD	ARS1-B10-02081			75	98.6	15365.62	125	0.1321	0.35	0.02			98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02081-03	GAM-A-020	-0.00668	AM-241	0.0246215	0.0225	0.02462544	pCi	0.01125	g	ARS-007	MBL	ARS1-B10-02081		U									n			MBL	MB<MDA
ARS1-B10-02081-03	GAM-A-020	0	CO-60	0.021019	0.0385	0.02101904	pCi	0.01925	g	ARS-007	MBL	ARS1-B10-02081		U									n			MBL	MB<MDA
ARS1-B10-02081-03	GAM-A-020	0.004451	CS-137	0.0072663	0.0127	0.0072716	pCi	0.00635	g	ARS-007	MBL	ARS1-B10-02081		U									n			MBL	MB<MDA
ARS1-B10-02088-01	GAM-A-020	33901	AM-241	428.1032	269.2	2480.184	pCi	134.6	g	ARS-007	LCS	ARS1-B10-02088			75	97.14	34896.7	125		0.40				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02088-01	GAM-A-020	25481	CO-60	472.8304	209.5	1016.946	pCi	104.75	g	ARS-007	LCS	ARS1-B10-02088			75	100.4	25394.58	125		0.08				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02088-01	GAM-A-020	15198	CS-137	358.7388	156.6	683.7264	pCi	78.3	g	ARS-007	LCS	ARS1-B10-02088			75	98.92	15365.62	125		0.25				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02088-02	GAM-A-020	34521	AM-241	411.012	252.6	2478.812	pCi	126.3	g	ARS-007	LCSD	ARS1-B10-02088			75	98.92	34896.7	125	1.7544	0.15	0.18			99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02088-02	GAM-A-020	25188	CO-60	420.518	218.5	985.2528	pCi	109.25	g	ARS-007	LCSD	ARS1-B10-02088			75	98.92	25394.58	125	1.1447	0.21	0.21			99	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02088-02	GAM-A-020	14872	CS-137	316.7752	132.7	651.8176	pCi	66.35	g	ARS-007	LCSD	ARS1-B10-02088			75	98.92	15365.62	125	2.1949	0.76	0.35			97	2.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02088-03	GAM-A-020	-0.00021	AM-241	0.0221421	0.0197	0.02214212	pCi	0.00985	g	ARS-007	MBL	ARS1-B10-02088		U									n			MBL	MB<MDA
ARS1-B10-02088-03	GAM-A-020	-0.00119	CO-60	0.046697	0.0267	0.046697	pCi	0.01335	g	ARS-007	MBL	ARS1-B10-02088		U									n			MBL	MB<MDA
ARS1-B10-02088-03	GAM-A-020	0.00062	CS-137	0.0083504	0.0157	0.008350384	pCi	0.00785	g	ARS-007	MBL	ARS1-B10-02088		U									n			MBL	MB<MDA
ARS1-B10-02091-01	GAM-A-020	33817	AM-241	423.9872	272.2	2407.468	pCi	136.1	g	ARS-007	LCS	ARS1-B10-02091			75	96.86	34896.7	125		0.45				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02091-01	GAM-A-020	24743	CO-60	435.8844	210.4	987.154	pCi	105.2	g	ARS-007	LCS	ARS1-B10-02091			75	97.42	25394.58	125		0.66				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02091-01	GAM-A-020	15253	CS-137	327.7708	114.3	709.2652	pCi	57.15	g	ARS-007	LCS	ARS1-B10-02091			75	99.25	15365.62	125		0.16				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02091-02	GAM-A-020	33792	AM-241	413.3444	264.8	2428.244	pCi	132.4	g	ARS-007	LCSD	ARS1-B10-02091			75	99.25	34896.7	125	0	0.45	0.01			97	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02091-02	GAM-A-020	25193	CO-60	428.4952	222.1	987.9576	pCi	111.05	g	ARS-007	LCSD	ARS1-B10-02091			75	99.25	25394.58	125	1.8025	0.20	0.32			99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02091-02	GAM-A-020	15320	CS-137	330.6716	142.8	673.4952	pCi	71.4	g	ARS-007	LCSD	ARS1-B10-02091			75	99.25	15365.62	125	0.458	0.07	0.07			100	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02091-03	GAM-A-020	-0.0009	AM-241	0.0240198	0.0189	0.0240198	pCi	0.00945	g	ARS-007	MBL	ARS1-B10-02091		U									n			MBL	MB<MDA
ARS1-B10-02091-03	GAM-A-020	0	CO-60	0.0023075	0.00868	0.002307508	pCi	0.00434	g	ARS-007	MBL	ARS1-B10-02091		U									n			MBL	MB<MDA
ARS1-B10-02091-03	GAM-A-020	-0.00037	CS-137	0.0112032	0.014	0.011203164	pCi	0.007	g	ARS-007	MBL	ARS1-B10-02091		U									n			MBL	MB<MDA
ARS1-B10-02101-01	GAM-A-020	33626	AM-241	416.304	263	2392.964	pCi	131.5	g	ARS-007	LCS	ARS1-B10-02101			75	96.28	34896.7	125		0.53				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02101-01	GAM-A-020	24529	CO-60	441.686	250.1	982.8812	pCi	125.05	g	ARS-007	LCS	ARS1-B10-02101			75	96.6	25394.58	125		0.88				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02101-01	GAM-A-020	14874	CS-137	334.8464	135.1	698.838	pCi	67.55	g	ARS-007	LCS	ARS1-B10-02101			75	96.77	15365.62	125		0.70				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02101-02	GAM-A-020	34009	AM-241	405.7004	250.6	2442.16	pCi	125.3	g	ARS-007	LCSD	ARS1-B10-02101			75	96.77	34896.7	125	1.1834	0.36	0.11			97	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02101-02	GAM-A-020	24548	CO-60	420.2828	223.2	964.7316	pCi	111.6	g	ARS-007	LCSD	ARS1-B10-02101			75	96.77	25394.58	125	0.0815	0.88	0.01			97	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02101-02	GAM-A-020	14894	CS-137	320.1856	142.3	654.2088	pCi	71.15	g	ARS-007	LCSD	ARS1-B10-02101			75	96.77	15365.62	125	0.1344	0.72	0.02			97	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02101-03	GAM-A-020	-0.00201	AM-241	0.0266638	0.0251	0.02666384	pCi	0.01255	g	ARS-007	MBL	ARS1-B10-02101		U									n			MBL	MB<MDA
ARS1-B10-02101-03	GAM-A-020	-0.00119	CO-60	0.046697	0.0199	0.046697	pCi	0.00995	g	ARS-007	MBL	ARS1-B10-02101		U									n			MBL	MB<MDA
ARS1-B10-02101-03	GAM-A-020	-0.00071	CS-137	0.2070544	0.0166	0.2070544	pCi	0.0083	g	ARS-007	MBL	ARS1-B10-02101		U									n			MBL	MB<MDA
ARS1-B10-02118-01	GAM-A-020	33830	AM-241	400.33	245.4	2428.832	pCi	122.7	g	ARS-007	LCS	ARS1-B10-02118			75	96.86	34896.7	125		0.44				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02118-01	GAM-A-020	24890	CO-60	421.2824	212.5	975.1784	pCi	106.25	g	ARS-007	LCS	ARS1-B10-02118			75	98.01	25394.58	125		0.52				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02118-01	GAM-A-020	15200	CS-137	317.0496	131.3	662.872	pCi	65.65	g	ARS-007	LCS	ARS1-B10-02118			75	98.92	15365.62	125		0.25				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02118-02	GAM-A-020	34242	AM-241	429.9064	275.4	2437.848	pCi	137.7	g	ARS-007	LCSD	ARS1-B10-02118			75	98.92	34896.7	125	1.1765	0.27	0.12			98	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02118-02	GAM-A-020	24986	CO-60	440.706	207.5	997.0912	pCi	103.75	g	ARS-007	LCSD	ARS1-B10-02118			75	98.92	25394.58	125	0.401	0.41	0.07			98	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02118-02	GAM-A-020	15279	CS-137	332.9256	138.3	712.6364	pCi	69.15	g	ARS-007	LCSD	ARS1-B10-02118			75	98.92	15365.62	125	0.5249	0.12	0.08			99	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02118-03	GAM-A-020	0.008783	AM-241	0.0115256	0.0198	0.011542244	pCi	0.0099	g	ARS-007	MBL	ARS1-B10-02118		U									n			MBL	MB<MDA
ARS1-B10-02118-03	GAM-A-020	-0.00031	CO-60	0.0094382	0.0189	0.00943838	pCi	0.00945	g	ARS-007	MBL	ARS1-B10-02118		U									n			MBL	MB<MDA
ARS1-B10-02118-03	GAM-A-020	0.002186	CS-137	0.0079409	0.0147	0.007942116	pCi	0.00735	g	ARS-007	MBL	ARS1-B10-02118		U									n			MBL	MB<MDA
ARS1-B10-02127-01	GAM-A-020	34037	AM-241	421.694	270.1	2446.864	pCi	135.05	g	ARS-007	LCS	ARS1-B10-02127			75	97.43	34896.7	125		0.35				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02127-01	GAM-A-020	25129	CO-60	418.9108	210.9	982.7048	pCi	105.45	g	ARS-007	LCS	ARS1-B10-02127			75	98.96	25394.58	125		0.27				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02127-01	GAM-A-020	15081	CS-137	324.968	129.5	662.7936	pCi	64.75	g	ARS-007	LCS	ARS1-B10-02127			75	98.14	15365.62	125		0.43				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02127-02	GAM-A-020	34146	AM-241	433.4148	273.1	2498.608	pCi	136.55	g	ARS-007	LCSD	ARS1-B10-02127			75	98.14	34896.7	125	0.2937	0.30	0.03			98	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02127-02	GAM-A-020	25908	CO-60	480.592	226.3	1033.9392	pCi	113.15	g	ARS-007	LCSD	ARS1-B10-02127			75	98.14	25394.58	125	3.0564	0.50	0.55			102	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02127-02	GAM-A-020	15069	CS-137	353.7016	140	676.886	pCi	70	g	ARS-007	LCSD	ARS1-B10-02127			75	98.14	15365.62	125	0.0663	0.44	0.01			98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02127-03	GAM-A-020	-0.00374	AM-241	0.0204369	0.0258	0.02043888	pCi	0.0129	g	ARS-007	MBL	ARS1-B10-02127		U									n			MBL	MB<MDA
ARS1-B10-02127-03	GAM-A-020	0.00057	CO-60	0.0112077	0.0215	0.011207868	pCi	0.01075	g	ARS-007	MBL	ARS1-B10-02127		U									n			MBL	MB<MDA
ARS1-B10-02127-03	GAM-A-020	-0.00312	CS-137	0.0146024	0.0162	0.014603764	pCi	0.0081	g	ARS-007	MBL	ARS1-B10-02127		U									n			MBL	MB<MDA
ARS1-B10-02142-01	GAM-A-020	34294	AM-241	422.8504	270.2	2464.896	pCi	135.1	g	ARS-007	LCS	ARS1-B10-02142			75	98.29	34896.7	125		0.24				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02142-01	GAM-A-020	25324	CO-60	416.9704	194.5	988.134	pCi	97.25	g	ARS-007	LCS	ARS1-B10-02142			75	99.71	25394.58	125		0.07				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02142-01	GAM-A-020	15000	CS-137	342.6864	146.8	669.0068	pCi	73.4	g	ARS-007	LCS	ARS1-B10-02142			75	97.62	15365.62	125		0.55				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02142-02	GAM-A-020	33918	AM-241	432.0428	287.1	2440.396	pCi	143.55	g	ARS-007	LCSD	ARS1-B10-02142			75	97.62	34896.7	125	1.173	0.40	0.11			97	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02142-02	GAM-A-020	25020	CO-60	509.2864	280.8	1023.806	pCi	140.4	g	ARS-007	LCSD	ARS1-B10-02142			75	97.62	25394.58	125	1.1919	0.37	0.21			99	1.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02142-02	GAM-A-020	14888	CS-137	328.0648	161.8	684.2164	pCi	80.9	g	ARS-007	LCSD	ARS1-B10-02142			75	97.62	15365.62	125	0.736	0.70	0.12			97	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02142-03	GAM-A-020	0.00116	AM-241	0.0102477	0.0188	0.01024786	pCi	0.0094	g	ARS-007	MBL	ARS1-B10-02142		U									n			MBL	MB<MDA
ARS1-B10-02142-03	GAM-A-020	-0.00316	CO-60	0.0253683	0.0245	0.02536828	pCi	0.01225	g	ARS-007	MBL	ARS1-B10-02142		U									n			MBL	MB<MDA
ARS1-B10-02142-03	GAM-A-020	0.001712	CS-137	0.0086456	0.0164	0.008646148	pCi	0.0082	g	ARS-007	MBL	ARS1-B10-02142		U									n			MBL	MB<MDA
ARS1-B10-02167-01	GAM-A-020	33895	AM-241	421.1256	258.4	2478.616	pCi	129.2	g	ARS-007	LCS	ARS1-B10-02167			75	97.14	34896.7	125		0.40				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02167-01	GAM-A-020	15163	CS-137	353.7408	150.5	679.9632	pCi	75.25	g	ARS-007	LCS	ARS1-B10-02167			75	98.66	15365.62	125		0.30				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02167-02	GAM-A-020	34216	AM-241	425.3396	270.9	2459.996	pCi	135.45	g	ARS-007	LCSD	ARS1-B10-02167			75	98.66	34896.7	125	0.8811	0.28	0.09			98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02167-02	GAM-A-020	14936	CS-137	312.0124	128.8	651.6804	pCi	64.4	g	ARS-007	LCSD	ARS1-B10-02167			75	98.66	15365.62	125	1.4618	0.66	0.24			97	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02167-03	GAM-A-020	3.98E-05	AM-241	0.0143723	0.0259	0.014372288	pCi	0.01295	g	ARS-007	MBL	ARS1-B10-02167		U									n			MBL	MB<MDA
ARS1-B10-02167-03	GAM-A-020	-0.00147	CS-137	0.0576769	0.0203	0.05767692	pCi	0.01015	g	ARS-007	MBL	ARS1-B10-02167		U									n			MBL	MB<MDA
ARS1-B10-02178-01	GAM-A-020	34007	AM-241	431.3372	284.3	2446.472	pCi	142.15	g	ARS-007	LCS	ARS1-B10-02178			75	97.43	34896.7	125		0.36				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02178-01	GAM-A-020	14888	CS-137	313.3648	129.2	650.6808	pCi	64.6	g	ARS-007	LCS	ARS1-B10-02178			75	96.9	15365.62	125		0.73				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02178-02	GAM-A-020	33798	AM-241	430.4552	280.2	2407.272	pCi	140.1	g	ARS-007	LCSD	ARS1-B10-02178			75	96.9	34896.7	125	0.59	0.46	0.06			97	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02178-02	GAM-A-020	15266	CS-137	334.8856	142.8	713.0676	pCi	71.4	g	ARS-007	LCSD	ARS1-B10-02178			75	96.9	15365.62	125	2.5199	0.14	0.39			99	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02178-03	GAM-A-020	0.001276	AM-241	0.0118578	0.0212	0.011858196	pCi	0.0106	g	ARS-007	MBL	ARS1-B10-02178		U									n			MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological — **March 2011**

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	ChemRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)) MARLAP	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-02178-03	GAM-A-020	-0.00438	CS-137	0.0140079	0.0177	0.014010668	pCi	0.00885	g	ARS-007	MBL	ARS1-B10-02178		U									n			MBL	MB<MDA
ARS1-B10-02191-01	GAM-A-020	33551	AM-241	442.372	286.4	2457.84	pCi	143.2	g	ARS-007	LCS	ARS1-B10-02191			75	96.28	34896.7	125		0.55				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02191-01	GAM-A-020	25445	CO-60	483.2184	227.2	1020.7092	pCi	113.6	g	ARS-007	LCS	ARS1-B10-02191			75	100	25394.58	125		0.05				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02191-01	GAM-A-020	15040	CS-137	357.6216	131.5	677.9836	pCi	65.75	g	ARS-007	LCS	ARS1-B10-02191			75	97.88	15365.62	125		0.48				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02191-02	GAM-A-020	33627	AM-241	411.1688	261.7	2416.484	pCi	130.85	g	ARS-007	LCSD	ARS1-B10-02191			75	97.88	34896.7	125	0	0.53	0.02			96	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02191-02	GAM-A-020	24882	CO-60	423.8892	211.6	976.0604	pCi	105.8	g	ARS-007	LCSD	ARS1-B10-02191			75	97.88	25394.58	125	2.2651	0.53	0.40			98	2.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02191-02	GAM-A-020	15257	CS-137	319.4408	131.4	665.9296	pCi	65.7	g	ARS-007	LCSD	ARS1-B10-02191			75	97.88	15365.62	125	1.4521	0.16	0.23			99	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02191-03	GAM-A-020	-0.01073	AM-241	0.0205878	0.024	0.0205996	pCi	0.012	g	ARS-007	MBL	ARS1-B10-02191		U									n			MBL	MB<MDA
ARS1-B10-02191-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0232	0.04084052	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-02191		U									n			MBL	MB<MDA
ARS1-B10-02191-03	GAM-A-020	0.002373	CS-137	0.0094333	0.0176	0.00943446	pCi	0.0088	g	ARS-007	MBL	ARS1-B10-02191		U									n			MBL	MB<MDA
ARS1-B10-02201-01	GAM-A-020	33865	AM-241	431.5136	286.6	2436.476	pCi	143.3	g	ARS-007	LCS	ARS1-B10-02201			75	97.14	34896.7	125		0.42				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02201-01	GAM-A-020	24269	CO-60	458.8948	271.9	976.0996	pCi	135.95	g	ARS-007	LCS	ARS1-B10-02201			75	95.57	25394.58	125		1.15				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02201-01	GAM-A-020	14918	CS-137	329.966	146.7	686.196	pCi	73.35	g	ARS-007	LCS	ARS1-B10-02201			75	97.1	15365.62	125		0.65				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02201-02	GAM-A-020	33945	AM-241	391.0004	230.5	2435.3	pCi	115.25	g	ARS-007	LCSD	ARS1-B10-02201			75	97.1	34896.7	125	0	0.39	0.02			97	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02201-02	GAM-A-020	25240	CO-60	422.7916	189.6	986.9972	pCi	94.8	g	ARS-007	LCSD	ARS1-B10-02201			75	97.1	25394.58	125	3.9184	0.16	0.70			99	3.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02201-02	GAM-A-020	15061	CS-137	321.0676	127.6	660.1476	pCi	63.8	g	ARS-007	LCSD	ARS1-B10-02201			75	97.1	15365.62	125	0.934	0.46	0.15			98	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02201-03	GAM-A-020	0.007627	AM-241	0.0123956	0.0216	0.012407388	pCi	0.0108	g	ARS-007	MBL	ARS1-B10-02201		U									n			MBL	MB<MDA
ARS1-B10-02201-03	GAM-A-020	-0.00018	CO-60	0.0101808	0.0202	0.010180828	pCi	0.0101	g	ARS-007	MBL	ARS1-B10-02201		U									n			MBL	MB<MDA
ARS1-B10-02201-03	GAM-A-020	-8E-05	CS-137	0.0031211	0.0141	0.003121104	pCi	0.00705	g	ARS-007	MBL	ARS1-B10-02201		U									n			MBL	MB<MDA
ARS1-B10-02226-01	GAM-A-020	34055	AM-241	393.372	228.9	2443.336	pCi	114.45	g	ARS-007	LCS	ARS1-B10-02226			75	97.72	34896.7	125		0.34				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02226-01	GAM-A-020	24845	CO-60	424.1832	223.8	975.9036	pCi	111.9	g	ARS-007	LCS	ARS1-B10-02226			75	97.86	25394.58	125		0.56				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02226-01	GAM-A-020	14739	CS-137	320.1072	127.7	649.0148	pCi	63.85	g	ARS-007	LCS	ARS1-B10-02226			75	95.93	15365.62	125		0.97				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02226-02	GAM-A-020	34129	AM-241	402.682	241.4	2425.5	pCi	120.7	g	ARS-007	LCSD	ARS1-B10-02226			75	95.93	34896.7	125	0	0.32	0.02			98	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02226-02	GAM-A-020	24668	CO-60	439.0988	240.9	986.1544	pCi	120.45	g	ARS-007	LCSD	ARS1-B10-02226			75	95.93	25394.58	125	0.727	0.74	0.13			97	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02226-02	GAM-A-020	15388	CS-137	327.0848	126.1	713.8908	pCi	63.05	g	ARS-007	LCSD	ARS1-B10-02226			75	95.93	15365.62	125	4.3146	0.03	0.67			100	4.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02226-03	GAM-A-020	0.001966	AM-241	0.0103192	0.0185	0.010319988	pCi	0.00925	g	ARS-007	MBL	ARS1-B10-02226		U									n			MBL	MB<MDA
ARS1-B10-02226-03	GAM-A-020	-0.00171	CO-60	0.0472399	0.0173	0.04723992	pCi	0.00865	g	ARS-007	MBL	ARS1-B10-02226		U									n			MBL	MB<MDA
ARS1-B10-02226-03	GAM-A-020	-0.00077	CS-137	0.0303526	0.0208	0.03035256	pCi	0.0104	g	ARS-007	MBL	ARS1-B10-02226		U									n			MBL	MB<MDA
ARS1-B10-02235-01	GAM-A-020	33564	AM-241	386.1396	227.2	2407.86	pCi	113.6	g	ARS-007	LCS	ARS1-B10-02235			75	96.28	34896.7	125		0.55				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02235-01	GAM-A-020	24116	CO-60	588.882	217.1	1035.8208	pCi	108.55	g	ARS-007	LCS	ARS1-B10-02235			75	94.9	25394.58	125		1.23				95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02235-01	GAM-A-020	14938	CS-137	316.6576	112.9	653.8952	pCi	56.45	g	ARS-007	LCS	ARS1-B10-02235			75	97.23	15365.62	125		0.65				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02235-02	GAM-A-020	33670	AM-241	412.776	264.7	2419.62	pCi	132.35	g	ARS-007	LCSD	ARS1-B10-02235			75	97.23	34896.7	125	0.2972	0.51	0.03			96	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02235-02	GAM-A-020	24146	CO-60	577.5924	195.1	1030.3132	pCi	97.55	g	ARS-007	LCSD	ARS1-B10-02235			75	97.23	25394.58	125	0.1243	1.21	0.02			95	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02235-02	GAM-A-020	14794	CS-137	320.7932	149.6	651.0924	pCi	74.8	g	ARS-007	LCSD	ARS1-B10-02235			75	97.23	15365.62	125	1.0091	0.88	0.16			96	1.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02235-03	GAM-A-020	0.001471	AM-241	0.0121434	0.0221	0.012143768	pCi	0.01105	g	ARS-007	MBL	ARS1-B10-02235		U									n			MBL	MB<MDA
ARS1-B10-02235-03	GAM-A-020	-0.00139	CO-60	0.0070766	0.0143	0.007076972	pCi	0.00715	g	ARS-007	MBL	ARS1-B10-02235		U									n			MBL	MB<MDA
ARS1-B10-02235-03	GAM-A-020	0.000616	CS-137	0.0069359	0.0134	0.006935852	pCi	0.0067	g	ARS-007	MBL	ARS1-B10-02235		U									n			MBL	MB<MDA
ARS1-B10-02256-01	GAM-A-020	34031	AM-241	426.9664	265.2	2489.396	pCi	132.6	g	ARS-007	LCS	ARS1-B10-02256			75	97.43	34896.7	125		0.35				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02256-01	GAM-A-020	26026	CO-60	485.7468	243.2	1040.0152	pCi	121.6	g	ARS-007	LCS	ARS1-B10-02256			75	102.4	25394.58	125		0.61				102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02256-01	GAM-A-020	15241	CS-137	355.1128	144.1	683.2364	pCi	72.05	g	ARS-007	LCS	ARS1-B10-02256			75	99.18	15365.62	125		0.18				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02256-02	GAM-A-020	33824	AM-241	391.5884	233.7	2426.872	pCi	116.85	g	ARS-007	LCSD	ARS1-B10-02256			75	99.18	34896.7	125	0.59	0.44	0.06			97	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02256-02	GAM-A-020	24944	CO-60	423.1052	203.2	977.6872	pCi	101.6	g	ARS-007	LCSD	ARS1-B10-02256			75	99.18	25394.58	125	4.277	0.46	0.76			98	4.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02256-02	GAM-A-020	14957	CS-137	316.1676	127.4	654.3068	pCi	63.7	g	ARS-007	LCSD	ARS1-B10-02256			75	99.18	15365.62	125	1.8543	0.62	0.30			97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02256-03	GAM-A-020	0.004765	AM-241	0.0135285	0.0239	0.013532428	pCi	0.01195	g	ARS-007	MBL	ARS1-B10-02256		U									n			MBL	MB<MDA
ARS1-B10-02256-03	GAM-A-020	-0.00125	CO-60	0.0987977	0.0187	0.09879772	pCi	0.00935	g	ARS-007	MBL	ARS1-B10-02256		U									n			MBL	MB<MDA
ARS1-B10-02256-03	GAM-A-020	-0.00094	CS-137	0.0390765	0.0172	0.03907652	pCi	0.0086	g	ARS-007	MBL	ARS1-B10-02256		U									n			MBL	MB<MDA
ARS1-B10-02278-01	GAM-A-020	33683	AM-241	394.1364	236.7	2417.464	pCi	118.35	g	ARS-007	LCS	ARS1-B10-02278			75	96.57	34896.7	125		0.50				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-01	GAM-A-020	33683	AM-241	394.1364	236.7	2417.464	pCi	118.35	g	ARS-007	LCS	ARS1-B10-02278			75	96.57	34896.7	125		0.50				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-01	GAM-A-020	24948	CO-60	428.5344	226	980.1764	pCi	113	g	ARS-007	LCS	ARS1-B10-02278			75	98.25	25394.58	125		0.46				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-01	GAM-A-020	24948	CO-60	428.5344	226	980.1764	pCi	113	g	ARS-007	LCS	ARS1-B10-02278			75	98.25	25394.58	125		0.46				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-01	GAM-A-020	15187	CS-137	326.9672	132.6	667.2428	pCi	66.3	g	ARS-007	LCS	ARS1-B10-02278			75	98.86	15365.62	125		0.27				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-01	GAM-A-020	15187	CS-137	326.9672	132.6	667.2428	pCi	66.3	g	ARS-007	LCS	ARS1-B10-02278			75	98.86	15365.62	125		0.27				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-02	GAM-A-020	34116	AM-241	406.4648	251.3	2449.804	pCi	125.65	g	ARS-007	LCSD	ARS1-B10-02278			75	98.86	34896.7	125	1.1799	0.32	0.13			98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-02	GAM-A-020	34116	AM-241	406.4648	251.3	2449.804	pCi	125.65	g	ARS-007	LCSD	ARS1-B10-02278			75	98.86	34896.7	125	1.1799	0.32	0.13			98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-02	GAM-A-020	24754	CO-60	416.304	189	969.5924	pCi	94.5	g	ARS-007	LCSD	ARS1-B10-02278			75	98.86	25394.58	125	0.8048	0.66	0.14			97	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-02	GAM-A-020	24754	CO-60	416.304	189	969.5924	pCi	94.5	g	ARS-007	LCSD	ARS1-B10-02278			75	98.86	25394.58	125	0.8048	0.66	0.14			97	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-02	GAM-A-020	15172	CS-137	317.3436	101.6	662.1468	pCi	50.8	g	ARS-007	LCSD	ARS1-B10-02278			75	98.86	15365.62	125	0.1318	0.29	0.02			99	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-02	GAM-A-020	15172	CS-137	317.3436	101.6	662.1468	pCi	50.8	g	ARS-007	LCSD	ARS1-B10-02278			75	98.86	15365.62	125	0.1318	0.29	0.02			99	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02278-03	GAM-A-020	-0.00247	AM-241	0.2192456	0.024	0.2192456	pCi	0.012	g	ARS-007	MBL	ARS1-B10-02278		U									n			MBL	MB<MDA
ARS1-B10-02278-03	GAM-A-020	-0.00247	AM-241	0.2192456	0.024	0.2192456	pCi	0.012	g	ARS-007	MBL	ARS1-B10-02278		U									n			MBL	MB<MDA
ARS1-B10-02278-03	GAM-A-020	-0.00126	CO-60	0.0104997	0.0204	0.010499916	pCi	0.0102	g	ARS-007	MBL	ARS1-B10-02278		U									n			MBL	MB<MDA
ARS1-B10-02278-03	GAM-A-020	-0.00126	CO-60	0.0104997	0.0204	0.010499916	pCi	0.0102	g	ARS-007	MBL	ARS1-B10-02278		U									n			MBL	MB<MDA
ARS1-B10-02278-03	GAM-A-020	0.000118	CS-137	0.0078696	0.0152	0.007869596	pCi	0.0076	g	ARS-007	MBL	ARS1-B10-02278		U									n			MBL	MB<MDA
ARS1-B10-02278-03	GAM-A-020	0.000118	CS-137	0.0078696	0.0152	0.007869596	pCi	0.0076	g	ARS-007	MBL	ARS1-B10-02278		U									n			MBL	MB<MDA
ARS1-B10-02292-01	GAM-A-020	33925	AM-241	430.612	284.3	2440.592	pCi	142.15	g	ARS-007	LCS	ARS1-B10-02292			75	97.14	34896.7	125		0.40				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02292-01	GAM-A-020	24572	CO-60	458.052	293.5	985.194	pCi	146.75	g	ARS-007	LCS	ARS1-B10-02292			75	96.75	25394.58	125		0.83				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02292-01	GAM-A-020	14761	CS-137	352.2316	157.7	691.7036	pCi	78.85	g	ARS-007	LCS	ARS1-B10-02292			75	96.06	15365.62	125		0.87				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02292-02	GAM-A-020	33999	AM-241	422.0664	277.4	2444.12	pCi	138.7	g	ARS-007	LCSD	ARS1-B10-02292			75	96.06	34896.7	125	0.2946	0.37	0.02			97	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02292-02	GAM-A-020	24625	CO-60	443.5872	288.5	980.2352	pCi	144.25	g	ARS-007	LCSD	ARS1-B10-02292			75	96.06	25394.58	125	0.2439	0.79	0.04			97	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02292-02	GAM-A-020	14992	CS-137	334.2976	125.6	690.9	pCi	62.8	g	ARS-007	LCSD	ARS1-B10-02292			75	96.06	15365.62	125	1.5462	0.54	0.24			98	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02292-03	GAM-A-020	0.007494	AM-241	0.0129064	0.0224	0.012916596	pCi	0.0112	g	ARS-007	MBL	ARS1-B10-02292		U									n			MBL	MB<MDA
ARS1-B10-02292-03	GAM-A-020	-0.00104	CO-60	0.0408405	0.0232	0.04084052	pCi	0.0116	g	ARS-007	MBL	ARS1-B10-02292		U									n			MBL	MB<MDA
ARS1-B10-02292-03	GAM-A-020	0.000622	CS-137	0.0069782	0.0139	0.006978384	pCi	0.00695	g	ARS-007	MBL	ARS1-B10-02292		U									n			MBL	MB<MDA
ARS1-B10-02305-01	GAM-A-020	33205	AM-241	394.548	243.3	2384.144	pCi	121.65	g	ARS-007	LCS	ARS1-B10-02305			75	95.14	34896.7	125		0.71				95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02305-01	GAM-A-020	24986	CO-60	419.3616	193.3	977.4128	pCi	96.65	g	ARS-007	LCS	ARS1-B10-02305			75	98.41	25394.58	125		0.42				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02305-01	GAM-A-020	15055	CS-137	320.8716	135.9	659.8536	pCi	67.95	g	ARS-007	LCS	ARS1-B10-02305			75	98.01	15365.62	125		0.47				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02305-02	GAM-A-020	34048	AM-241	412.1684	254.8	2421.384	pCi	127.4	g	ARS-007	LCSD	ARS1-B10-02305			75	98.01	34896.7	125	2.381	0.35	0.25			98	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02305-02	GAM-A-020	24967	CO-60	448.0756	251.2	999.7372	pCi	125.6	g	ARS-007	LCSD	ARS1-B10-02305			75	98.01	25394.58	125	0.0801	0.43	0.01			98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02305-02	GAM-A-020	15079	CS-137	321.6164	123.9	700.0728	pCi	61.95	g	ARS-007	LCSD	ARS1-B10-02305			75	98.01	15365.62	125	0.1327	0.41	0.02			98	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02305-03	GAM-A-020	-0.00028	AM-241	0.0243138	0.0242	0.0243138	pCi	0.0121	g	ARS-007	MBL	ARS1-B10-02305		U									n			MBL	MB<MDA
ARS1-B10-02305-03	GAM-A-020	-0.00099	CO-60	0.1553731	0.0235	0.15537312	pCi	0.01175	g	ARS-007	MBL	ARS1-B10-02305		U									n			MBL	MB<MDA
ARS1-B10-02305-03	GAM-A-020	-0.002	CS-137	0.0146116	0.0161	0.014612192	pCi	0.00805	g	ARS-007	MBL	ARS1-B10-02305		U									n			MBL	MB<MDA
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	CheckRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	34359	AM-241	418.9892	267.5	2468.816	pCi	133.75	g	ARS-007	LCS	ARS1-B10-02682			75	98.58	34896.7	125		0.22					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	24538	CO-60	487.3932	317.9	998.1104	pCi	158.95	g	ARS-007	LCS	ARS1-B10-02682			75	96.63	25394.58	125		0.86					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-01	GAM-A-020	14967	CS-137	327.7316	150.6	686.8428	pCi	75.3	g	ARS-007	LCS	ARS1-B10-02682			75	97.43	15365.62	125		0.58					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	34098	AM-241	425.0456	271.9	2427.068	pCi	135.95	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	34896.7	125	0.8759	0.33	0.08				98	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	24403	CO-60	612.6568	219.4	1066.9652	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	25394.58	125	0.5721	0.93	0.09				96	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-02	GAM-A-020	15344	CS-137	335.8656	139.1	716.38	pCi	69.55	g	ARS-007	LCSD	ARS1-B10-02682			75	97.43	15365.62	125	2.4414	0.03	0.38				100	2.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00818	AM-241	0.0240982	0.0247	0.02410604	pCi	0.01235	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	-0.00094	CO-60	0.0081554	0.0165	0.00815556	pCi	0.00825	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	0.000802	CS-137	0.0071934	0.0138	0.007193592	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	0.000802	CS-137	0.0071934	0.0138	0.007193592	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	0.000802	CS-137	0.0071934	0.0138	0.007193592	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	0.000802	CS-137	0.0071934	0.0138	0.007193592	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	0.000802	CS-137	0.0071934	0.0138	0.007193592	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	0.000802	CS-137	0.0071934	0.0138	0.007193592	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-02682-03	GAM-A-020	0.000802	CS-137	0.0071934	0.0138	0.007193592	pCi	0.0069	g	ARS-007	MBL	ARS1-B10-02682		U									n				MBL	MB<MDA
ARS1-B10-03494-01	GAM-A-020	34428	AM-241	433.3364	270	2518.6	pCi	135	g	ARS-007	LCS	ARS1-B10-03494			75	98.58	34896.7	125		0.19					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-01	GAM-A-020	34428	AM-241	433.3364	270	2518.6	pCi	135	g	ARS-007	LCS	ARS1-B10-03494			75	98.58	34896.7	125		0.19					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-01	GAM-A-020	34428	AM-241	433.3364	270	2518.6	pCi	135	g	ARS-007	LCS	ARS1-B10-03494			75	98.58	34896.7	125		0.19					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-01	GAM-A-020	25266	CO-60	484.5316	246.1	1015.77	pCi	123.05	g	ARS-007	LCS	ARS1-B10-03494			75	99.63	25394.58	125		0.13					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-01	GAM-A-020	25266	CO-60	484.5316	246.1	1015.77	pCi	123.05	g	ARS-007	LCS	ARS1-B10-03494			75	99.63	25394.58	125		0.13					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-03494-01	GAM-A-020	25266	CO-60	484.5316	246.1	1015.77	pCi	123.05	g	ARS-007	LCS	ARS1-B10-03494			75	99.63	25394.58	125		0.13					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-01	GAM-A-020	15025	CS-137	347.3904	126.9	672.1624	pCi	63.45	g	ARS-007	LCS	ARS1-B10-03494			75	97.82	15365.62	125		0.51					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-01	GAM-A-020	15025	CS-137	347.3904	126.9	672.1624	pCi	63.45	g	ARS-007	LCS	ARS1-B10-03494			75	97.82	15365.62	125		0.51					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-01	GAM-A-020	15025	CS-137	347.3904	126.9	672.1624	pCi	63.45	g	ARS-007	LCS	ARS1-B10-03494			75	97.82	15365.62	125		0.51					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	33718	AM-241	427.8484	280.6	2425.696	pCi	140.3	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	34896.7	125	2.0558	0.49	0.20				97	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	33718	AM-241	427.8484	280.6	2425.696	pCi	140.3	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	34896.7	125	2.0558	0.49	0.20				97	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	33718	AM-241	427.8484	280.6	2425.696	pCi	140.3	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	34896.7	125	2.0558	0.49	0.20				97	2.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	24492	CO-60	463.7164	299.7	985.3508	pCi	149.85	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	25394.58	125	3.135	0.92	0.55				96	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	24492	CO-60	463.7164	299.7	985.3508	pCi	149.85	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	25394.58	125	3.135	0.92	0.55				96	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	24492	CO-60	463.7164	299.7	985.3508	pCi	149.85	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	25394.58	125	3.135	0.92	0.55				96	3.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	15109	CS-137	331.2988	149.6	693.5852	pCi	74.8	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	15365.62	125	0.5309	0.37	0.09				98	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	15109	CS-137	331.2988	149.6	693.5852	pCi	74.8	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	15365.62	125	0.5309	0.37	0.09				98	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-02	GAM-A-020	15109	CS-137	331.2988	149.6	693.5852	pCi	74.8	g	ARS-007	LCSD	ARS1-B10-03494			75	97.82	15365.62	125	0.5309	0.37	0.09				98	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03494-03	GAM-A-020	0.002105	AM-241	0.0051997	0.00887	0.00520184	pCi	0.004435	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	0.002105	AM-241	0.0051997	0.00887	0.00520184	pCi	0.004435	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	0.002105	AM-241	0.0051997	0.00887	0.00520184	pCi	0.004435	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	-0.00145	CO-60	0.0038298	0.00621	0.003831016	pCi	0.003105	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	-0.00145	CO-60	0.0038298	0.00621	0.003831016	pCi	0.003105	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	-0.00145	CO-60	0.0038298	0.00621	0.003831016	pCi	0.003105	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	0.002925	CS-137	0.0032101	0.00537	0.003215184	pCi	0.002685	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	0.002925	CS-137	0.0032101	0.00537	0.003215184	pCi	0.002685	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	0.002925	CS-137	0.0032101	0.00537	0.003215184	pCi	0.002685	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03494-03	GAM-A-020	0	RA-226	0	0.15	0	pCi	0.075	g	ARS-007	MBL	ARS1-B10-03494		U									n				MBL	MB<MDA
ARS1-B10-03586-01	GAM-A-020	34025	AM-241	418.7736	264.4	2420.992	pCi	132.2	g	ARS-007	LCS	ARS1-B10-03586			75	97.43	34896.7	125		0.36					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-01	GAM-A-020	34025	AM-241	418.7736	264.4	2420.992	pCi	132.2	g	ARS-007	LCS	ARS1-B10-03586			75	97.43	34896.7	125		0.36					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-01	GAM-A-020	24818	CO-60	439.8632	193.8	991.2896	pCi	96.9	g	ARS-007	LCS	ARS1-B10-03586			75	97.74	25394.58	125		0.58					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-01	GAM-A-020	24818	CO-60	439.8632	193.8	991.2896	pCi	96.9	g	ARS-007	LCS	ARS1-B10-03586			75	97.74	25394.58	125		0.58					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-01	GAM-A-020	24818	CO-60	439.8632	193.8	991.2896	pCi	96.9	g	ARS-007	LCS	ARS1-B10-03586			75	97.74	25394.58	125		0.58					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-01	GAM-A-020	14908	CS-137	335.846	134.8	700.5432	pCi	67.4	g	ARS-007	LCS	ARS1-B10-03586			75	97.03	15365.62	125		0.65					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-01	GAM-A-020	14908	CS-137	335.846	134.8	700.5432	pCi	67.4	g	ARS-007	LCS	ARS1-B10-03586			75	97.03	15365.62	125		0.65					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-01	GAM-A-020	14908	CS-137	335.846	134.8	700.5432	pCi	67.4	g	ARS-007	LCS	ARS1-B10-03586			75	97.03	15365.62	125		0.65					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	34691	AM-241	416.9704	259	2491.748	pCi	129.5	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	34896.7	125	2.0378	0.08	0.19				99	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	34691	AM-241	416.9704	259	2491.748	pCi	129.5	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	34896.7	125	2.0378	0.08	0.19				99	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	34691	AM-241	416.9704	259	2491.748	pCi	129.5	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	34896.7	125	2.0378	0.08	0.19				99	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	25017	CO-60	436.4724	231.7	986.762	pCi	115.85	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	25394.58	125	0.8026	0.38	0.14				99	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	25017	CO-60	436.4724	231.7	986.762	pCi	115.85	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	25394.58	125	0.8026	0.38	0.14				99	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	25017	CO-60	436.4724	231.7	986.762	pCi	115.85	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	25394.58	125	0.8026	0.38	0.14				99	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	15102	CS-137	313.9724	127.8	658.2072	pCi	63.9	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	15365.62	125	1.2662	0.40	0.20				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	15102	CS-137	313.9724	127.8	658.2072	pCi	63.9	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	15365.62	125	1.2662	0.40	0.20				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-02	GAM-A-020	15102	CS-137	313.9724	127.8	658.2072	pCi	63.9	g	ARS-007	LCSD	ARS1-B10-03586			75	97.03	15365.62	125	1.2662	0.40	0.20				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03586-03	GAM-A-020	0.001304	AM-241	0.0054453	0.00931	0.005446056	pCi	0.004655	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.001304	AM-241	0.0054453	0.00931	0.005446056	pCi	0.004655	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.001304	AM-241	0.0054453	0.00931	0.005446056	pCi	0.004655	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.000368	CO-60	0.0034245	0.00611	0.003424708	pCi	0.003055	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.000368	CO-60	0.0034245	0.00611	0.003424708	pCi	0.003055	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.000368	CO-60	0.0034245	0.00611	0.003424708	pCi	0.003055	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.002484	CS-137	0.0027366	0.00463	0.002740864	pCi	0.002315	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.002484	CS-137	0.0027366	0.00463	0.002740864	pCi	0.002315	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0.002484	CS-137	0.0027366	0.00463	0.002740864	pCi	0.002315	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03586-03	GAM-A-020	0	RA-226	0	0.0862	0	pCi	0.0431	g	ARS-007	MBL	ARS1-B10-03586		U									n				MBL	MB<MDA
ARS1-B10-03699-01	GAM-A-020	33342	AM-241	425.6924	270.6	2399.04	pCi	135.3	g	ARS-007	LCS	ARS1-B10-03699			75	95.42	34896.7	125		0.65					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	33342	AM-241	425.6924	270.6	2399.04	pCi	135.3	g	ARS-007	LCS	ARS1-B10-03699			75	95.42	34896.7	125		0.65					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	33342	AM-241	425.6924	270.6	2399.04	pCi	135.3	g	ARS-007	LCS	ARS1-B10-03699			75	95.42	34896.7	125		0.65					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	33342	AM-241	425.6924	270.6	2399.04	pCi	135.3	g	ARS-007	LCS	ARS1-B10-03699			75	95.42	34896.7	125		0.65					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	24848	CO-60	436.296	232.3	1168.9636	pCi	116.15	g	ARS-007	LCS	ARS1-B10-03699			75	97.66	25394.58	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	24848	CO-60	436.296	232.3	1168.9636	pCi	116.15	g	ARS-007	LCS	ARS1-B10-03699			75	97.66	25394.58	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	24848	CO-60	436.296	232.3	1168.9636	pCi	116.15	g	ARS-007	LCS	ARS1-B10-03699			75	97.66	25394.58	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	24848	CO-60	436.296	232.3	1168.9636	pCi	116.15	g	ARS-007	LCS	ARS1-B10-03699			75	97.66	25394.58	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	15340	CS-137	323.9684	129.4	774.9448	pCi	64.7	g	ARS-007	LCS	ARS1-B10-03699			75	99.83	15365.62	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	15340	CS-137	323.9684	129.4	774.9448	pCi	64.7	g	ARS-007	LCS	ARS1-B10-03699			75	99.83	15365.62	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	15340	CS-137	323.9684	129.4	774.9448	pCi	64.7	g	ARS-007	LCS	ARS1-B10-03699			75	99.83	15365.62	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-01	GAM-A-020	15340	CS-137	323.9684	129.4	774.9448	pCi	64.7	g	ARS-007	LCS	ARS1-B10-03699			75	99.83	15365.62	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	33428	AM-241	430.7296	274.9	2405.9	pCi	137.45	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	34896.7	125	0.2999	0.61	0.03				96	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	33428	AM-241	430.7296	274.9	2405.9	pCi	137.45	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	34896.7	125	0.2999	0.61	0.03				96	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	33428	AM-241	430.7296	274.9	2405.9	pCi	137.45	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	34896.7	125	0.2999	0.61	0.03				96	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	33428	AM-241	430.7296	274.9	2405.9	pCi	137.45	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	34896.7	125	0.2999	0.61	0.03				96	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	25256	CO-60	433.454	217.4	1184.4476	pCi	108.7	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	25394.58	125	1.6364	0.12	0.25				99	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	25256	CO-60	433.454	217.4	1184.4476	pCi	108.7	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	25394.58	125	1.6364	0.12	0.25				99	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	25256	CO-60	433.454	217.4	1184.4476	pCi	108.7	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	25394.58	125	1.6364	0.12	0.25				99	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	25256	CO-60	433.454	217.4	1184.4476	pCi	108.7	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	25394.58	125	1.6364	0.12	0.25				99	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	15534	CS-137	328.7312	127.9	785.0192	pCi	63.95	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	15365.62	125	1.231	0.21	0.18				101	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	15534	CS-137	328.7312	127.9	785.0192	pCi	63.95	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	15365.62	125	1.231	0.21	0.18				101	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	15534	CS-137	328.7312	127.9	785.0192	pCi	63.95	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	15365.62	125	1.231	0.21	0.18				101	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-02	GAM-A-020	15534	CS-137	328.7312	127.9	785.0192	pCi	63.95	g	ARS-007	LCSD	ARS1-B10-03699			75	99.83	15365.62	125	1.231	0.21	0.18				101	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03699-03	GAM-A-020	0.008813	AM-241	0.0090803	0.015	0.00910028	pCi	0.0075	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	0.008813	AM-241	0.0090803	0.015	0.00910028	pCi	0.0075	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	0.008813	AM-241	0.0090803	0.015	0.00910028	pCi	0.0075	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	0.008813	AM-241	0.0090803	0.015	0.00910028	pCi	0.0075	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	-0.0002	CO-60	0.007154	0.0142	0.007154	pCi	0.0071	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	-0.0002	CO-60	0.007154	0.0142	0.007154	pCi	0.0071	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	-0.0002	CO-60	0.007154	0.0142	0.007154	pCi	0.0071	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	-0.0002	CO-60	0.007154	0.0142	0.007154	pCi	0.0071	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	-0.00192	CS-137	0.0073469	0.0134	0.007348432	pCi	0.0067	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	-0.00192	CS-137	0.0073469	0.0134	0.007348432	pCi	0.0067	g	ARS-007	MBL	ARS1-B10-03699		U									n				MBL	MB<MDA

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	CheckRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0))	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-03699-03	GAM-A-020	-0.00192	CS-137	0.0073469	0.0134	0.007348432	pCi	0.0067	g	ARS-007	MBL	ARS1-B10-03699		U									n			MBL	MB<MDA
ARS1-B10-03699-03	GAM-A-020	-0.00192	CS-137	0.0073469	0.0134	0.007348432	pCi	0.0067	g	ARS-007	MBL	ARS1-B10-03699		U									n			MBL	MB<MDA
ARS1-B10-03705-01	GAM-A-020	33966	AM-241	425.3004	273.5	2442.552	pCi	136.75	g	ARS-007	LCS	ARS1-B10-03705			75	97.43	34896.7	125		0.38				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03705-01	GAM-A-020	25042	CO-60	457.5424	282.2	999.7568	pCi	141.1	g	ARS-007	LCS	ARS1-B10-03705			75	98.6	25394.58	125		0.35				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03705-01	GAM-A-020	14888	CS-137	360.8948	184.9	700.5236	pCi	92.45	g	ARS-007	LCS	ARS1-B10-03705			75	96.9	15365.62	125		0.68				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03705-02	GAM-A-020	33594	AM-241	430.0044	285.7	2417.464	pCi	142.85	g	ARS-007	LCSD	ARS1-B10-03705			75	96.9	34896.7	125	1.1834	0.54	0.11			96	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03705-02	GAM-A-020	25218	CO-60	451.2704	268	1002.5008	pCi	134	g	ARS-007	LCSD	ARS1-B10-03705			75	96.9	25394.58	125	0.7163	0.18	0.12			99	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03705-02	GAM-A-020	14878	CS-137	345.8616	170.1	692.5856	pCi	85.05	g	ARS-007	LCSD	ARS1-B10-03705			75	96.9	15365.62	125	0.0672	0.70	0.01			97	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03705-03	GAM-A-020	0.000301	AM-241	0.0136026	0.0242	0.013602596	pCi	0.0121	g	ARS-007	MBL	ARS1-B10-03705		U									n			MBL	MB<MDA
ARS1-B10-03705-03	GAM-A-020	0.000101	CO-60	0.0112365	0.0215	0.011236484	pCi	0.01075	g	ARS-007	MBL	ARS1-B10-03705		U									n			MBL	MB<MDA
ARS1-B10-03705-03	GAM-A-020	-0.00086	CS-137	0.0888194	0.0155	0.08881936	pCi	0.00775	g	ARS-007	MBL	ARS1-B10-03705		U									n			MBL	MB<MDA
ARS1-B10-03713-01	GAM-A-020	33339	AM-241	431.9644	278.2	2400.02	pCi	139.1	g	ARS-007	LCS	ARS1-B10-03713			75	95.42	34896.7	125		0.65				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	33339	AM-241	431.9644	278.2	2400.02	pCi	139.1	g	ARS-007	LCS	ARS1-B10-03713			75	95.42	34896.7	125		0.65				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	33339	AM-241	431.9644	278.2	2400.02	pCi	139.1	g	ARS-007	LCS	ARS1-B10-03713			75	95.42	34896.7	125		0.65				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	33339	AM-241	431.9644	278.2	2400.02	pCi	139.1	g	ARS-007	LCS	ARS1-B10-03713			75	95.42	34896.7	125		0.65				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	24971	CO-60	429.5144	203.2	1171.4528	pCi	101.6	g	ARS-007	LCS	ARS1-B10-03713			75	98.45	25394.58	125		0.36				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	24971	CO-60	429.5144	203.2	1171.4528	pCi	101.6	g	ARS-007	LCS	ARS1-B10-03713			75	98.45	25394.58	125		0.36				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	24971	CO-60	429.5144	203.2	1171.4528	pCi	101.6	g	ARS-007	LCS	ARS1-B10-03713			75	98.45	25394.58	125		0.36				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	15492	CS-137	330.0836	131.8	783.8432	pCi	65.9	g	ARS-007	LCS	ARS1-B10-03713			75	100.8	15365.62	125		0.16				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	15492	CS-137	330.0836	131.8	783.8432	pCi	65.9	g	ARS-007	LCS	ARS1-B10-03713			75	100.8	15365.62	125		0.16				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	15492	CS-137	330.0836	131.8	783.8432	pCi	65.9	g	ARS-007	LCS	ARS1-B10-03713			75	100.8	15365.62	125		0.16				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-01	GAM-A-020	15492	CS-137	330.0836	131.8	783.8432	pCi	65.9	g	ARS-007	LCS	ARS1-B10-03713			75	100.8	15365.62	125		0.16				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	33272	AM-241	428.6128	272.1	2394.728	pCi	136.05	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	34896.7	125	0	0.68	0.02			95	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	33272	AM-241	428.6128	272.1	2394.728	pCi	136.05	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	34896.7	125	0	0.68	0.02			95	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	33272	AM-241	428.6128	272.1	2394.728	pCi	136.05	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	34896.7	125	0	0.68	0.02			95	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	33272	AM-241	428.6128	272.1	2394.728	pCi	136.05	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	34896.7	125	0	0.68	0.02			95	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	24983	CO-60	434.8064	231.6	1173.844	pCi	115.8	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	25394.58	125	0.04	0.35	0.01			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	24983	CO-60	434.8064	231.6	1173.844	pCi	115.8	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	25394.58	125	0.04	0.35	0.01			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	24983	CO-60	434.8064	231.6	1173.844	pCi	115.8	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	25394.58	125	0.04	0.35	0.01			98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	15361	CS-137	345.2932	151.9	784.98	pCi	75.95	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	15365.62	125	0.8428	0.01	0.12			100	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	15361	CS-137	345.2932	151.9	784.98	pCi	75.95	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	15365.62	125	0.8428	0.01	0.12			100	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	15361	CS-137	345.2932	151.9	784.98	pCi	75.95	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	15365.62	125	0.8428	0.01	0.12			100	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-02	GAM-A-020	15361	CS-137	345.2932	151.9	784.98	pCi	75.95	g	ARS-007	LCSD	ARS1-B10-03713			75	100.8	15365.62	125	0.8428	0.01	0.12			100	0.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03713-03	GAM-A-020	-0.00102	AM-241	0.0516029	0.0101	0.05160288	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	-0.00102	AM-241	0.0516029	0.0101	0.05160288	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	-0.00102	AM-241	0.0516029	0.0101	0.05160288	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	-0.00102	AM-241	0.0516029	0.0101	0.05160288	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	-0.0024	CO-60	0.0212111	0.00718	0.02121112	pCi	0.00359	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	-0.0024	CO-60	0.0212111	0.00718	0.02121112	pCi	0.00359	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	-0.0024	CO-60	0.0212111	0.00718	0.02121112	pCi	0.00359	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	0.000663	CS-137	0.0036342	0.0066	0.003634428	pCi	0.0033	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	0.000663	CS-137	0.0036342	0.0066	0.003634428	pCi	0.0033	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	0.000663	CS-137	0.0036342	0.0066	0.003634428	pCi	0.0033	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03713-03	GAM-A-020	0.000663	CS-137	0.0036342	0.0066	0.003634428	pCi	0.0033	g	ARS-007	MBL	ARS1-B10-03713		U									n			MBL	MB<MDA
ARS1-B10-03718-01	GAM-A-020	33643	AM-241	410.3456	248.7	2417.464	pCi	124.35	g	ARS-007	LCS	ARS1-B10-03718			75	96.28	34896.7	125		0.52				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-01	GAM-A-020	33643	AM-241	410.3456	248.7	2417.464	pCi	124.35	g	ARS-007	LCS	ARS1-B10-03718			75	96.28	34896.7	125		0.52				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-01	GAM-A-020	25018	CO-60	427.2996	196.9	1172.5308	pCi	98.45	g	ARS-007	LCS	ARS1-B10-03718			75	98.45	25394.58	125		0.32				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-01	GAM-A-020	25018	CO-60	427.2996	196.9	1172.5308	pCi	98.45	g	ARS-007	LCS	ARS1-B10-03718			75	98.45	25394.58	125		0.32				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-01	GAM-A-020	15397	CS-137	334.3564	113	781.7264	pCi	56.5	g	ARS-007	LCS	ARS1-B10-03718			75	100.2	15365.62	125		0.04				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-01	GAM-A-020	15397	CS-137	334.3564	113	781.7264	pCi	56.5	g	ARS-007	LCS	ARS1-B10-03718			75	100.2	15365.62	125		0.04				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-02	GAM-A-020	33999	AM-241	430.9256	279.3	2421.384	pCi	139.65	g	ARS-007	LCSD	ARS1-B10-03718			75	100.2	34896.7	125	1.1834	0.37	0.10			97	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-02	GAM-A-020	33999	AM-241	430.9256	279.3	2421.384	pCi	139.65	g	ARS-007	LCSD	ARS1-B10-03718			75	100.2	34896.7	125	1.1834	0.37	0.10			97	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-02	GAM-A-020	24426	CO-60	444.0576	222.2	980.6468	pCi	111.1	g	ARS-007	LCSD	ARS1-B10-03718			75	100.2	25394.58	125	2.3862	0.99	0.39			96	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-02	GAM-A-020	24426	CO-60	444.0576	222.2	980.6468	pCi	111.1	g	ARS-007	LCSD	ARS1-B10-03718			75	100.2	25394.58	125	2.3862	0.99	0.39			96	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-02	GAM-A-020	15182	CS-137	333.4156	123.4	709.324	pCi	61.7	g	ARS-007	LCSD	ARS1-B10-03718			75	100.2	15365.62	125	1.4388	0.26	0.20			99	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-02	GAM-A-020	15182	CS-137	333.4156	123.4	709.324	pCi	61.7	g	ARS-007	LCSD	ARS1-B10-03718			75	100.2	15365.62	125	1.4388	0.26	0.20			99	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03718-03	GAM-A-020	0.001507	AM-241	0.0062061	0.0106	0.006207124	pCi	0.0053	g	ARS-007	MBL	ARS1-B10-03718		U									n			MBL	MB<MDA
ARS1-B10-03718-03	GAM-A-020	0.001507	AM-241	0.0062061	0.0106	0.006207124	pCi	0.0053	g	ARS-007	MBL	ARS1-B10-03718		U									n			MBL	MB<MDA
ARS1-B10-03718-03	GAM-A-020	-0.00042	CO-60	0.0052963	0.00711	0.005296312	pCi	0.003555	g	ARS-007	MBL	ARS1-B10-03718		U									n			MBL	MB<MDA
ARS1-B10-03718-03	GAM-A-020	-0.00042	CO-60	0.0052963	0.00711	0.005296312	pCi	0.003555	g	ARS-007	MBL	ARS1-B10-03718		U									n			MBL	MB<MDA
ARS1-B10-03718-03	GAM-A-020	0.002735	CS-137	0.0029941	0.00501	0.002998996	pCi	0.002505	g	ARS-007	MBL	ARS1-B10-03718		U									n			MBL	MB<MDA
ARS1-B10-03718-03	GAM-A-020	0.002735	CS-137	0.0029941	0.00501	0.002998996	pCi	0.002505	g	ARS-007	MBL	ARS1-B10-03718		U									n			MBL	MB<MDA
ARS1-B10-03782-01	GAM-A-020	34346	AM-241	422.3212	268.5	2468.424	pCi	134.25	g	ARS-007	LCS	ARS1-B10-03782			75	98.29	34896.7	125		0.22				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-01	GAM-A-020	34346	AM-241	422.3212	268.5	2468.424	pCi	134.25	g	ARS-007	LCS	ARS1-B10-03782			75	98.29	34896.7	125		0.22				98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-01	GAM-A-020	24429	CO-60	424.1244	247.9	962.654	pCi	123.95	g	ARS-007	LCS	ARS1-B10-03782			75	96.2	25394.58	125		1.00				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-01	GAM-A-020	24429	CO-60	424.1244	247.9	962.654	pCi	123.95	g	ARS-007	LCS	ARS1-B10-03782			75	96.2	25394.58	125		1.00				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-01	GAM-A-020	14839	CS-137	305.4268	99.99	645.2712	pCi	49.995	g	ARS-007	LCS	ARS1-B10-03782			75	96.58	15365.62	125		0.82				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-01	GAM-A-020	14839	CS-137	305.4268	99.99	645.2712	pCi	49.995	g	ARS-007	LCS	ARS1-B10-03782			75	96.58	15365.62	125		0.82				97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-02	GAM-A-020	34273	AM-241	390.5692	223	2458.232	pCi	111.5	g	ARS-007	LCSD	ARS1-B10-03782			75	96.58	34896.7	125	0	0.25	0.02			98	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-02	GAM-A-020	34273	AM-241	390.5692	223	2458.232	pCi	111.5	g	ARS-007	LCSD	ARS1-B10-03782			75	96.58	34896.7	125	0	0.25	0.02			98	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-02	GAM-A-020	24864	CO-60	427.7112	219.4	978.0204	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-03782			75	96.58	25394.58	125	1.7448	0.54	0.32			98	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-02	GAM-A-020	24864	CO-60	427.7112	219.4	978.0204	pCi	109.7	g	ARS-007	LCSD	ARS1-B10-03782			75	96.58	25394.58	125	1.7448	0.54	0.32			98	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-02	GAM-A-020	14712	CS-137	310.3072	124	643.3308	pCi	62	g	ARS-007	LCSD	ARS1-B10-03782			75	96.58	15365.62	125	0.8799	1.02	0.14			96	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-02	GAM-A-020	14712	CS-137	310.3072	124	643.3308	pCi	62	g	ARS-007	LCSD	ARS1-B10-03782			75	96.58	15365.62	125	0.8799	1.02	0.14			96	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03782-03	GAM-A-020	0.001517	AM-241	0.0050935	0.00871	0.005094628	pCi	0.004355	g	ARS-007	MBL	ARS1-B10-03782		U									n			MBL	MB<MDA
ARS1-B10-03782-03	GAM-A-020	0.001517	AM-241	0.0050935	0.00871	0.005094628	pCi	0.004355	g	ARS-007	MBL	ARS1-B10-03782		U									n			MBL	MB<MDA
ARS1-B10-03782-03	GAM-A-020	0.000311	CO-60	0.002766	0.005	0.002765952	pCi	0.0025	g	ARS-007	MBL	ARS1-B10-03782		U									n			MBL	MB<MDA
ARS1-B10-03782-03	GAM-A-020	0.000311	CO-60	0.002766	0.005	0.002765952	pCi	0.0025	g	ARS-007	MBL	ARS1-B10-03782		U									n			MBL	MB<MDA
ARS1-B10-03782-03	GAM-A-020	-0.00089	CS-137	0.010829	0.00625	0.010829196	pCi	0.003125	g	ARS-007	MBL	ARS1-B10-03782		U									n			MBL	MB<MDA
ARS1-B10-03782-03	GAM-A-020	-0.00089	CS-137	0.010829	0.00625	0.010829196	pCi	0.003125	g	ARS-007	MBL	ARS1-B10-03782		U									n			MBL	MB<MDA
ARS1-B10-03806-01	GAM-A-020	33579	AM-241	413.9324	252.7	2413.544	pCi	126.35	g	ARS-007	LCS	ARS1-B10-03806			75	96.28	34896.7	125		0.55				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-01	GAM-A-020	33579	AM-241	413.9324	252.7	2413.544	pCi	126.35	g	ARS-007	LCS	ARS1-B10-03806			75	96.28	34896.7	125		0.55				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-01	GAM-A-020	33579	AM-241	413.9324	252.7	2413.544	pCi	126.35	g	ARS-007	LCS	ARS1-B10-03806			75	96.28	34896.7	125		0.55				96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-01	GAM-A-020	25122	CO-60	430.2788	186.5	1177.8424	pCi	93.25	g	ARS-007	LCS	ARS1-B10-03806			75	98.84	25394.58	125		0.23				99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-03806-01	GAM-A-020	25122	CO-60	430.2788	186.5	1177.8424	pCi	93.25	g	ARS-007	LCS	ARS1-B10-03806			75	98.84	25394.58	125		0.23					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-01	GAM-A-020	25122	CO-60	430.2788	186.5	1177.8424	pCi	93.25	g	ARS-007	LCS	ARS1-B10-03806			75	98.84	25394.58	125		0.23					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-01	GAM-A-020	15308	CS-137	329.5936	124.5	776.0032	pCi	62.25	g	ARS-007	LCS	ARS1-B10-03806			75	99.64	15365.62	125		0.07					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-01	GAM-A-020	15308	CS-137	329.5936	124.5	776.0032	pCi	62.25	g	ARS-007	LCS	ARS1-B10-03806			75	99.64	15365.62	125		0.07					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-01	GAM-A-020	15308	CS-137	329.5936	124.5	776.0032	pCi	62.25	g	ARS-007	LCS	ARS1-B10-03806			75	99.64	15365.62	125		0.07					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	33396	AM-241	413.0308	252.6	2400.608	pCi	126.3	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	34896.7	125	0.597	0.63	0.05				96	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	33396	AM-241	413.0308	252.6	2400.608	pCi	126.3	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	34896.7	125	0.597	0.63	0.05				96	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	33396	AM-241	413.0308	252.6	2400.608	pCi	126.3	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	34896.7	125	0.597	0.63	0.05				96	0.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	25270	CO-60	440.4512	231.8	1187.5836	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	25394.58	125	0.5954	0.10	0.09				100	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	25270	CO-60	440.4512	231.8	1187.5836	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	25394.58	125	0.5954	0.10	0.09				100	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	25270	CO-60	440.4512	231.8	1187.5836	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	25394.58	125	0.5954	0.10	0.09				100	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	15265	CS-137	327.026	101.9	773.1416	pCi	50.95	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	15365.62	125	0.2616	0.13	0.04				99	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	15265	CS-137	327.026	101.9	773.1416	pCi	50.95	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	15365.62	125	0.2616	0.13	0.04				99	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-02	GAM-A-020	15265	CS-137	327.026	101.9	773.1416	pCi	50.95	g	ARS-007	LCSD	ARS1-B10-03806			75	99.64	15365.62	125	0.2616	0.13	0.04				99	0.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03806-03	GAM-A-020	0.001285	AM-241	0.0052585	0.00902	0.005259268	pCi	0.00451	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	0.001285	AM-241	0.0052585	0.00902	0.005259268	pCi	0.00451	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	0.001285	AM-241	0.0052585	0.00902	0.005259268	pCi	0.00451	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	0.001399	CO-60	0.0039169	0.0069	0.003917844	pCi	0.00345	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	0.001399	CO-60	0.0039169	0.0069	0.003917844	pCi	0.00345	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	0.001399	CO-60	0.0039169	0.0069	0.003917844	pCi	0.00345	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	-0.00017	CS-137	0.0200234	0.0059	0.02002336	pCi	0.00295	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	-0.00017	CS-137	0.0200234	0.0059	0.02002336	pCi	0.00295	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03806-03	GAM-A-020	-0.00017	CS-137	0.0200234	0.0059	0.02002336	pCi	0.00295	g	ARS-007	MBL	ARS1-B10-03806		U									n				MBL	MB<MDA
ARS1-B10-03828-01	GAM-A-020	33974	AM-241	414.8536	261.2	2441.18	pCi	130.6	g	ARS-007	LCS	ARS1-B10-03828			75	97.43	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-01	GAM-A-020	33974	AM-241	414.8536	261.2	2441.18	pCi	130.6	g	ARS-007	LCS	ARS1-B10-03828			75	97.43	34896.7	125		0.38					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-01	GAM-A-020	24112	CO-60	615.44	247	1051.7948	pCi	123.5	g	ARS-007	LCS	ARS1-B10-03828			75	94.9	25394.58	125		1.22					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-01	GAM-A-020	24112	CO-60	615.44	247	1051.7948	pCi	123.5	g	ARS-007	LCS	ARS1-B10-03828			75	94.9	25394.58	125		1.22					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-01	GAM-A-020	15047	CS-137	313.7764	125.1	656.2668	pCi	62.55	g	ARS-007	LCS	ARS1-B10-03828			75	97.95	15365.62	125		0.49					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-01	GAM-A-020	15047	CS-137	313.7764	125.1	656.2668	pCi	62.55	g	ARS-007	LCS	ARS1-B10-03828			75	97.95	15365.62	125		0.49					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-02	GAM-A-020	34349	AM-241	421.1256	266	2468.424	pCi	133	g	ARS-007	LCSD	ARS1-B10-03828			75	97.95	34896.7	125	0.8785	0.22	0.11				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-02	GAM-A-020	34349	AM-241	421.1256	266	2468.424	pCi	133	g	ARS-007	LCSD	ARS1-B10-03828			75	97.95	34896.7	125	0.8785	0.22	0.11				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-02	GAM-A-020	25019	CO-60	426.79	225.1	982.5872	pCi	112.55	g	ARS-007	LCSD	ARS1-B10-03828			75	97.95	25394.58	125	3.7045	0.38	0.63				99	3.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-02	GAM-A-020	25019	CO-60	426.79	225.1	982.5872	pCi	112.55	g	ARS-007	LCSD	ARS1-B10-03828			75	97.95	25394.58	125	3.7045	0.38	0.63				99	3.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-02	GAM-A-020	14855	CS-137	313.8352	116.4	649.8184	pCi	58.2	g	ARS-007	LCSD	ARS1-B10-03828			75	97.95	15365.62	125	1.2705	0.79	0.21				97	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-02	GAM-A-020	14855	CS-137	313.8352	116.4	649.8184	pCi	58.2	g	ARS-007	LCSD	ARS1-B10-03828			75	97.95	15365.62	125	1.2705	0.79	0.21				97	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03828-03	GAM-A-020	-0.00102	AM-241	0.0514226	0.0104	0.05142256	pCi	0.0052	g	ARS-007	MBL	ARS1-B10-03828		U									n				MBL	MB<MDA
ARS1-B10-03828-03	GAM-A-020	-0.00102	AM-241	0.0514226	0.0104	0.05142256	pCi	0.0052	g	ARS-007	MBL	ARS1-B10-03828		U									n				MBL	MB<MDA
ARS1-B10-03828-03	GAM-A-020	-0.0015	CO-60	0.0571438	0.0067	0.0571438	pCi	0.00335	g	ARS-007	MBL	ARS1-B10-03828		U									n				MBL	MB<MDA
ARS1-B10-03828-03	GAM-A-020	-0.0015	CO-60	0.0571438	0.0067	0.0571438	pCi	0.00335	g	ARS-007	MBL	ARS1-B10-03828		U									n				MBL	MB<MDA
ARS1-B10-03828-03	GAM-A-020	0.000341	CS-137	0.003764	0.00685	0.003763984	pCi	0.003425	g	ARS-007	MBL	ARS1-B10-03828		U									n				MBL	MB<MDA
ARS1-B10-03828-03	GAM-A-020	0.000341	CS-137	0.003764	0.00685	0.003763984	pCi	0.003425	g	ARS-007	MBL	ARS1-B10-03828		U									n				MBL	MB<MDA
ARS1-B10-03875-01	GAM-A-020	33882	AM-241	418.5384	255	2435.496	pCi	127.5	g	ARS-007	LCS	ARS1-B10-03875			75	97.14	34896.7	125		0.42					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-01	GAM-A-020	33882	AM-241	418.5384	255	2435.496	pCi	127.5	g	ARS-007	LCS	ARS1-B10-03875			75	97.14	34896.7	125		0.42					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-01	GAM-A-020	33882	AM-241	418.5384	255	2435.496	pCi	127.5	g	ARS-007	LCS	ARS1-B10-03875			75	97.14	34896.7	125		0.42					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-01	GAM-A-020	25437	CO-60	435.904	173.1	1192.6796	pCi	86.55	g	ARS-007	LCS	ARS1-B10-03875			75	100	25394.58	125		0.04					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-01	GAM-A-020	25437	CO-60	435.904	173.1	1192.6796	pCi	86.55	g	ARS-007	LCS	ARS1-B10-03875			75	100	25394.58	125		0.04					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-01	GAM-A-020	15266	CS-137	335.2188	140.4	776.65	pCi	70.2	g	ARS-007	LCS	ARS1-B10-03875			75	99.38	15365.62	125		0.13					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-01	GAM-A-020	15266	CS-137	335.2188	140.4	776.65	pCi	70.2	g	ARS-007	LCS	ARS1-B10-03875			75	99.38	15365.62	125		0.13					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-02	GAM-A-020	33740	AM-241	422.3408	264.9	2426.284	pCi	132.45	g	ARS-007	LCSD	ARS1-B10-03875			75	99.38	34896.7	125	0.5917	0.48	0.04				97	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-02	GAM-A-020	33740	AM-241	422.3408	264.9	2426.284	pCi	132.45	g	ARS-007	LCSD	ARS1-B10-03875			75	99.38	34896.7	125	0.5917	0.48	0.04				97	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-02	GAM-A-020	33740	AM-241	422.3408	264.9	2426.284	pCi	132.45	g	ARS-007	LCSD	ARS1-B10-03875			75	99.38	34896.7	125	0.5917	0.48	0.04				97	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-02	GAM-A-020	25089	CO-60	438.2168	193.7	1179.43	pCi	96.85	g	ARS-007	LCSD	ARS1-B10-03875			75	99.38	25394.58	125	1.3853	0.26	0.21				99	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-02	GAM-A-020	25089	CO-60	438.2168	193.7	1179.43	pCi	96.85	g	ARS-007	LCSD	ARS1-B10-03875			75	99.38	25394.58	125	1.3853	0.26	0.21				99	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-02	GAM-A-020	15542	CS-137	328.5744	126.6	785.2936	pCi	63.3	g	ARS-007	LCSD	ARS1-B10-03875			75	99.38	15365.62	125	1.7527	0.22	0.25				101	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-02	GAM-A-020	15542	CS-137	328.5744	126.6	785.2936	pCi	63.3	g	ARS-007	LCSD	ARS1-B10-03875			75	99.38	15365.62	125	1.7527	0.22	0.25				101	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03875-03	GAM-A-020	-0.00122	AM-241	0.1656631	0.00799	0.16566312	pCi	0.003995	g	ARS-007	MBL	ARS1-B10-03875		U									n				MBL	MB<MDA
ARS1-B10-03875-03	GAM-A-020	-0.00122	AM-241	0.1656631	0.00799	0.16566312	pCi	0.003995	g	ARS-007	MBL	ARS1-B10-03875		U									n				MBL	MB<MDA
ARS1-B10-03875-03	GAM-A-020	-0.00122	AM-241	0.1656631	0.00799	0.16566312	pCi	0.003995	g	ARS-007	MBL	ARS1-B10-03875		U									n				MBL	MB<MDA
ARS1-B10-03875-03	GAM-A-020	-0.0021	CO-60	0.0309249	0.00674	0.03092684	pCi	0.00337	g	ARS-007	MBL	ARS1-B10-03875		U									n				MBL	MB<MDA
ARS1-B10-03875-03	GAM-A-020	-0.0021	CO-60	0.0309249	0.00674	0.03092684	pCi	0.00337	g	ARS-007	MBL	ARS1-B10-03875		U									n				MBL	MB<MDA
ARS1-B10-03875-03	GAM-A-020	-0.00034	CS-137	0.0047022	0.0065	0.004702236	pCi	0.00325	g	ARS-007	MBL	ARS1-B10-03875		U									n				MBL	MB<MDA
ARS1-B10-03875-03	GAM-A-020	-0.00034	CS-137	0.0047022	0.0065	0.004702236	pCi	0.00325	g	ARS-007	MBL	ARS1-B10-03875		U									n				MBL	MB<MDA
ARS1-B10-03884-01	GAM-A-020	33451	AM-241	431.2588	275.8	2407.664	pCi	137.9	g	ARS-007	LCS	ARS1-B10-03884			75	96	34896.7	125		0.60					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	33451	AM-241	431.2588	275.8	2407.664	pCi	137.9	g	ARS-007	LCS	ARS1-B10-03884			75	96	34896.7	125		0.60					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	33451	AM-241	431.2588	275.8	2407.664	pCi	137.9	g	ARS-007	LCS	ARS1-B10-03884			75	96	34896.7	125		0.60					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	33451	AM-241	431.2588	275.8	2407.664	pCi	137.9	g	ARS-007	LCS	ARS1-B10-03884			75	96	34896.7	125		0.60					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	33451	AM-241	431.2588	275.8	2407.664	pCi	137.9	g	ARS-007	LCS	ARS1-B10-03884			75	96	34896.7	125		0.60					96		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	24706	CO-60	427.2212	199.4	1159.8496	pCi	99.7	g	ARS-007	LCS	ARS1-B10-03884			75	97.26	25394.58	125		0.59					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	24706	CO-60	427.2212	199.4	1159.8496	pCi	99.7	g	ARS-007	LCS	ARS1-B10-03884			75	97.26	25394.58	125		0.59					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	24706	CO-60	427.2212	199.4	1159.8496	pCi	99.7	g	ARS-007	LCS	ARS1-B10-03884			75	97.26	25394.58	125		0.59					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	24706	CO-60	427.2212	199.4	1159.8496	pCi	99.7	g	ARS-007	LCS	ARS1-B10-03884			75	97.26	25394.58	125		0.59					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	24706	CO-60	427.2212	199.4	1159.8496	pCi	99.7	g	ARS-007	LCS	ARS1-B10-03884			75	97.26	25394.58	125		0.59					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	15832	CS-137	335.8852	123	800.4248	pCi	61.5	g	ARS-007	LCS	ARS1-B10-03884			75	103	15365.62	125		0.58					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	15832	CS-137	335.8852	123	800.4248	pCi	61.5	g	ARS-007	LCS	ARS1-B10-03884			75	103	15365.62	125		0.58					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	15832	CS-137	335.8852	123	800.4248	pCi	61.5	g	ARS-007	LCS	ARS1-B10-03884			75	103	15365.62	125		0.58					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	15832	CS-137	335.8852	123	800.4248	pCi	61.5	g	ARS-007	LCS	ARS1-B10-03884			75	103	15365.62	125		0.58					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	15832	CS-137	335.8852	123	800.4248	pCi	61.5	g	ARS-007	LCS	ARS1-B10-03884			75	103	15365.62	125		0.58					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-01	GAM-A-020	15832	CS-137	335.8852	123	800.4248	pCi	61.5	g	ARS-007	LCS	ARS1-B10-03884			75	103	15365.62	125		0.58					103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	33203	AM-241	423.5756	267.5	2389.044	pCi	133.75	g	ARS-007	LCSD	ARS1-B10-03884			75	103	34896.7	125	0.8996	0.71	0.07				95	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	33203	AM-241	423.5756	267.5	2389.044	pCi	133.75	g	ARS-007	LCSD	ARS1-B10-03884			75	103	34896.7	125	0.8996	0.71	0.07				95	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	Chem Recovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > MDA	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-03884-02	GAM-A-020	33203	AM-241	423.5756	267.5	2389.044	pCi	133.75	g	ARS-007	LCSD	ARS1-B10-03884			75	103	34896.7	125	0.8996	0.71	0.07				95	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	33203	AM-241	423.5756	267.5	2389.044	pCi	133.75	g	ARS-007	LCSD	ARS1-B10-03884			75	103	34896.7	125	0.8996	0.71	0.07				95	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	33203	AM-241	423.5756	267.5	2389.044	pCi	133.75	g	ARS-007	LCSD	ARS1-B10-03884			75	103	34896.7	125	0.8996	0.71	0.07				95	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	33203	AM-241	423.5756	267.5	2389.044	pCi	133.75	g	ARS-007	LCSD	ARS1-B10-03884			75	103	34896.7	125	0.8996	0.71	0.07				95	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	33203	AM-241	423.5756	267.5	2389.044	pCi	133.75	g	ARS-007	LCSD	ARS1-B10-03884			75	103	34896.7	125	0.8996	0.71	0.07				95	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	24917	CO-60	428.3188	231.8	1168.7872	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03884			75	103	25394.58	125	0.8463	0.41	0.13				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	24917	CO-60	428.3188	231.8	1168.7872	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03884			75	103	25394.58	125	0.8463	0.41	0.13				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	24917	CO-60	428.3188	231.8	1168.7872	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03884			75	103	25394.58	125	0.8463	0.41	0.13				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	24917	CO-60	428.3188	231.8	1168.7872	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03884			75	103	25394.58	125	0.8463	0.41	0.13				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	24917	CO-60	428.3188	231.8	1168.7872	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03884			75	103	25394.58	125	0.8463	0.41	0.13				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	24917	CO-60	428.3188	231.8	1168.7872	pCi	115.9	g	ARS-007	LCSD	ARS1-B10-03884			75	103	25394.58	125	0.8463	0.41	0.13				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	15400	CS-137	335.6892	141.6	782.3928	pCi	70.8	g	ARS-007	LCSD	ARS1-B10-03884			75	103	15365.62	125	2.7538	0.04	0.39				100	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	15400	CS-137	335.6892	141.6	782.3928	pCi	70.8	g	ARS-007	LCSD	ARS1-B10-03884			75	103	15365.62	125	2.7538	0.04	0.39				100	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	15400	CS-137	335.6892	141.6	782.3928	pCi	70.8	g	ARS-007	LCSD	ARS1-B10-03884			75	103	15365.62	125	2.7538	0.04	0.39				100	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	15400	CS-137	335.6892	141.6	782.3928	pCi	70.8	g	ARS-007	LCSD	ARS1-B10-03884			75	103	15365.62	125	2.7538	0.04	0.39				100	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	15400	CS-137	335.6892	141.6	782.3928	pCi	70.8	g	ARS-007	LCSD	ARS1-B10-03884			75	103	15365.62	125	2.7538	0.04	0.39				100	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	15400	CS-137	335.6892	141.6	782.3928	pCi	70.8	g	ARS-007	LCSD	ARS1-B10-03884			75	103	15365.62	125	2.7538	0.04	0.39				100	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-02	GAM-A-020	15400	CS-137	335.6892	141.6	782.3928	pCi	70.8	g	ARS-007	LCSD	ARS1-B10-03884			75	103	15365.62	125	2.7538	0.04	0.39				100	2.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03884-03	GAM-A-020	0.007329	AM-241	0.0055374	0.00924	0.005561696	pCi	0.00462	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	0.007329	AM-241	0.0055374	0.00924	0.005561696	pCi	0.00462	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	0.007329	AM-241	0.0055374	0.00924	0.005561696	pCi	0.00462	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	0.007329	AM-241	0.0055374	0.00924	0.005561696	pCi	0.00462	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	0.007329	AM-241	0.0055374	0.00924	0.005561696	pCi	0.00462	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	0.007329	AM-241	0.0055374	0.00924	0.005561696	pCi	0.00462	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-1.3E-05	CO-60	0.0026515	0.00453	0.002651488	pCi	0.002265	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-1.3E-05	CO-60	0.0026515	0.00453	0.002651488	pCi	0.002265	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-1.3E-05	CO-60	0.0026515	0.00453	0.002651488	pCi	0.002265	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-1.3E-05	CO-60	0.0026515	0.00453	0.002651488	pCi	0.002265	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-1.3E-05	CO-60	0.0026515	0.00453	0.002651488	pCi	0.002265	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-1.3E-05	CO-60	0.0026515	0.00453	0.002651488	pCi	0.002265	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-0.00099	CS-137	0.1488091	0.00485	0.14880908	pCi	0.002425	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-0.00099	CS-137	0.1488091	0.00485	0.14880908	pCi	0.002425	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-0.00099	CS-137	0.1488091	0.00485	0.14880908	pCi	0.002425	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-0.00099	CS-137	0.1488091	0.00485	0.14880908	pCi	0.002425	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-0.00099	CS-137	0.1488091	0.00485	0.14880908	pCi	0.002425	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03884-03	GAM-A-020	-0.00099	CS-137	0.1488091	0.00485	0.14880908	pCi	0.002425	g	ARS-007	MBL	ARS1-B10-03884		U									n				MBL	MB<MDA
ARS1-B10-03885-01	GAM-A-020	33701	AM-241	442.6268	285.4	2468.62	pCi	142.7	g	ARS-007	LCS	ARS1-B10-03885			75	96.57	34896.7	125		0.48					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	33701	AM-241	442.6268	285.4	2468.62	pCi	142.7	g	ARS-007	LCS	ARS1-B10-03885			75	96.57	34896.7	125		0.48					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	33701	AM-241	442.6268	285.4	2468.62	pCi	142.7	g	ARS-007	LCS	ARS1-B10-03885			75	96.57	34896.7	125		0.48					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	25946	CO-60	491.4896	241.8	1040.2308	pCi	120.9	g	ARS-007	LCS	ARS1-B10-03885			75	102	25394.58	125		0.53					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	25946	CO-60	491.4896	241.8	1040.2308	pCi	120.9	g	ARS-007	LCS	ARS1-B10-03885			75	102	25394.58	125		0.53					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	25946	CO-60	491.4896	241.8	1040.2308	pCi	120.9	g	ARS-007	LCS	ARS1-B10-03885			75	102	25394.58	125		0.53					102		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	15375	CS-137	360.7184	151.6	690.5276	pCi	75.8	g	ARS-007	LCS	ARS1-B10-03885			75	100.1	15365.62	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	15375	CS-137	360.7184	151.6	690.5276	pCi	75.8	g	ARS-007	LCS	ARS1-B10-03885			75	100.1	15365.62	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-01	GAM-A-020	15375	CS-137	360.7184	151.6	690.5276	pCi	75.8	g	ARS-007	LCS	ARS1-B10-03885			75	100.1	15365.62	125		0.01					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	33776	AM-241	442.6072	284.7	2473.912	pCi	142.35	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	34896.7	125	0.2963	0.45	0.02				97	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	33776	AM-241	442.6072	284.7	2473.912	pCi	142.35	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	34896.7	125	0.2963	0.45	0.02				97	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	33776	AM-241	442.6072	284.7	2473.912	pCi	142.35	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	34896.7	125	0.2963	0.45	0.02				97	0.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	25757	CO-60	492.2736	230.7	1034.7036	pCi	115.35	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	25394.58	125	0.7349	0.35	0.13				101	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	25757	CO-60	492.2736	230.7	1034.7036	pCi	115.35	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	25394.58	125	0.7349	0.35	0.13				101	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	25757	CO-60	492.2736	230.7	1034.7036	pCi	115.35	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	25394.58	125	0.7349	0.35	0.13				101	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	15084	CS-137	356.1908	143.4	678.6892	pCi	71.7	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	15365.62	125	1.9698	0.41	0.30				98	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	15084	CS-137	356.1908	143.4	678.6892	pCi	71.7	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	15365.62	125	1.9698	0.41	0.30				98	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-02	GAM-A-020	15084	CS-137	356.1908	143.4	678.6892	pCi	71.7	g	ARS-007	LCSD	ARS1-B10-03885			75	100.1	15365.62	125	1.9698	0.41	0.30				98	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-03885-03	GAM-A-020	-1.6E-05	AM-241	0.0040235	0.00688	0.004023488	pCi	0.00344	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-1.6E-05	AM-241	0.0040235	0.00688	0.004023488	pCi	0.00344	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-1.6E-05	AM-241	0.0040235	0.00688	0.004023488	pCi	0.00344	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-0.00017	CO-60	0.0019251	0.00342	0.001925092	pCi	0.00171	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-0.00017	CO-60	0.0019251	0.00342	0.001925092	pCi	0.00171	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-0.00017	CO-60	0.0019251	0.00342	0.001925092	pCi	0.00171	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-0.00056	CS-137	0.0283749	0.0051	0.02837492	pCi	0.00255	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-0.00056	CS-137	0.0283749	0.0051	0.02837492	pCi	0.00255	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-03885-03	GAM-A-020	-0.00056	CS-137	0.0283749	0.0051	0.02837492	pCi	0.00255	g	ARS-007	MBL	ARS1-B10-03885		U									n				MBL	MB<MDA
ARS1-B10-04148-01	GAM-A-020	34291	AM-241	426.7704	273.7	2465.288	pCi	136.85	g	ARS-007	LCS	ARS1-B10-04148			75	98.29	34896.7	125		0.25					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	34291	AM-241	426.7704	273.7	2465.288	pCi	136.85	g	ARS-007	LCS	ARS1-B10-04148			75	98.29	34896.7	125		0.25					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	34291	AM-241	426.7704	273.7	2465.288	pCi	136.85	g	ARS-007	LCS	ARS1-B10-04148			75	98.29	34896.7	125		0.25					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	34291	AM-241	426.7704	273.7	2465.288	pCi	136.85	g	ARS-007	LCS	ARS1-B10-04148			75	98.29	34896.7	125		0.25					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	34291	AM-241	426.7704	273.7	2465.288	pCi	136.85	g	ARS-007	LCS	ARS1-B10-04148			75	98.29	34896.7	125		0.25					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	24507	CO-60	439.2164	270.9	974.5316	pCi	135.45	g	ARS-007	LCS	ARS1-B10-04148			75	96.52	25394.58	125		0.91					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	24507	CO-60	439.2164	270.9	974.5316	pCi	135.45	g	ARS-007	LCS	ARS1-B10-04148			75	96.52	25394.58	125		0.91					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	24507	CO-60	439.2164	270.9	974.5316	pCi	135.45	g	ARS-007	LCS	ARS1-B10-04148			75	96.52	25394.58	125		0.91					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	24507	CO-60	439.2164	270.9	974.5316	pCi	135.45	g	ARS-007	LCS	ARS1-B10-04148			75	96.52	25394.58	125		0.91					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	24507	CO-60	439.2164	270.9	974.5316	pCi	135.45	g	ARS-007	LCS	ARS1-B10-04148			75	96.52	25394.58	125		0.91					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	15038	CS-137	336.1596	161.9	693.4284	pCi	80.95	g	ARS-007	LCS	ARS1-B10-04148			75	97.88	15365.62	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	15038	CS-137	336.1596	161.9	693.4284	pCi	80.95	g	ARS-007	LCS	ARS1-B10-04148			75	97.88	15365.62	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	15038	CS-137	336.1596	161.9	693.4284	pCi	80.95	g	ARS-007	LCS	ARS1-B10-04148			75	97.88	15365.62	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-01	GAM-A-020	15038	CS-137	336.1596	161.9	693.4284	pCi	80.95	g	ARS-007	LCS	ARS1-B10-04148			75	97.88	15365.62	125		0.47					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	34041	AM-241	431.2392	284.5	2448.628	pCi	142.25	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	34896.7	125	0.8785	0.35	0.07				98	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	34041	AM-241	431.2392	284.5	2448.628	pCi	142.25	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	34896.7	125	0.8785	0.35	0.07				98	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	34041	AM-241	431.2392	284.5	2448.628	pCi	142.25	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	34896.7	125	0.8785	0.35	0.07				98	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	34041	AM-241	431.2392	284.5	2448.628	pCi	142.25	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	34896.7	125	0.8785	0.35	0.07				98	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	ChaserRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0)	MB > RD	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-04148-02	GAM-A-020	34041	AM-241	431.2392	284.5	2448.628	pCi	142.25	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	34896.7	125	0.8785	0.35	0.07				98	0.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	25107	CO-60	469.9688	288.8	1007.538	pCi	144.4	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	25394.58	125	2.4184	0.29	0.43				99	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	25107	CO-60	469.9688	288.8	1007.538	pCi	144.4	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	25394.58	125	2.4184	0.29	0.43				99	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	25107	CO-60	469.9688	288.8	1007.538	pCi	144.4	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	25394.58	125	2.4184	0.29	0.43				99	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	25107	CO-60	469.9688	288.8	1007.538	pCi	144.4	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	25394.58	125	2.4184	0.29	0.43				99	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	25107	CO-60	469.9688	288.8	1007.538	pCi	144.4	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	25394.58	125	2.4184	0.29	0.43				99	2.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	14566	CS-137	357.0532	165.8	687.4504	pCi	82.9	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	15365.62	125	3.1746	1.16	0.48				95	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	14566	CS-137	357.0532	165.8	687.4504	pCi	82.9	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	15365.62	125	3.1746	1.16	0.48				95	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	14566	CS-137	357.0532	165.8	687.4504	pCi	82.9	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	15365.62	125	3.1746	1.16	0.48				95	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	14566	CS-137	357.0532	165.8	687.4504	pCi	82.9	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	15365.62	125	3.1746	1.16	0.48				95	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-02	GAM-A-020	14566	CS-137	357.0532	165.8	687.4504	pCi	82.9	g	ARS-007	LCSD	ARS1-B10-04148			75	97.88	15365.62	125	3.1746	1.16	0.48				95	3.2	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04148-03	GAM-A-020	-0.00139	AM-241	0.1423548	0.0102	0.1423548	pCi	0.0051	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00139	AM-241	0.1423548	0.0102	0.1423548	pCi	0.0051	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00139	AM-241	0.1423548	0.0102	0.1423548	pCi	0.0051	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00139	AM-241	0.1423548	0.0102	0.1423548	pCi	0.0051	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00139	AM-241	0.1423548	0.0102	0.1423548	pCi	0.0051	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00012	CO-60	0.0038702	0.00644	0.003870216	pCi	0.00322	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00012	CO-60	0.0038702	0.00644	0.003870216	pCi	0.00322	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00012	CO-60	0.0038702	0.00644	0.003870216	pCi	0.00322	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00012	CO-60	0.0038702	0.00644	0.003870216	pCi	0.00322	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00012	CO-60	0.0038702	0.00644	0.003870216	pCi	0.00322	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00241	CS-137	0.2371796	0.00672	0.2371796	pCi	0.00336	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00241	CS-137	0.2371796	0.00672	0.2371796	pCi	0.00336	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00241	CS-137	0.2371796	0.00672	0.2371796	pCi	0.00336	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00241	CS-137	0.2371796	0.00672	0.2371796	pCi	0.00336	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04148-03	GAM-A-020	-0.00241	CS-137	0.2371796	0.00672	0.2371796	pCi	0.00336	g	ARS-007	MBL	ARS1-B10-04148		U									n				MBL	MB<MDA
ARS1-B10-04178-01	GAM-A-020	33279	AM-241	414.2264	261.6	2368.66	pCi	130.8	g	ARS-007	LCS	ARS1-B10-04178			75	95.42	34896.7	125		0.68					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-01	GAM-A-020	33279	AM-241	414.2264	261.6	2368.66	pCi	130.8	g	ARS-007	LCS	ARS1-B10-04178			75	95.42	34896.7	125		0.68					95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-01	GAM-A-020	24797	CO-60	444.5084	224.5	992.7204	pCi	112.25	g	ARS-007	LCS	ARS1-B10-04178			75	97.66	25394.58	125		0.60					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-01	GAM-A-020	15095	CS-137	330.7892	109.6	704.914	pCi	54.8	g	ARS-007	LCS	ARS1-B10-04178			75	98.27	15365.62	125		0.38					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-01	GAM-A-020	15095	CS-137	330.7892	109.6	704.914	pCi	54.8	g	ARS-007	LCS	ARS1-B10-04178			75	98.27	15365.62	125		0.38					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-02	GAM-A-020	33909	AM-241	428.1424	274.5	2414.524	pCi	137.25	g	ARS-007	LCSD	ARS1-B10-04178			75	98.27	34896.7	125	1.7857	0.41	0.19				97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-02	GAM-A-020	33909	AM-241	428.1424	274.5	2414.524	pCi	137.25	g	ARS-007	LCSD	ARS1-B10-04178			75	98.27	34896.7	125	1.7857	0.41	0.19				97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-02	GAM-A-020	24833	CO-60	453.2304	241	997.7772	pCi	120.5	g	ARS-007	LCSD	ARS1-B10-04178			75	98.27	25394.58	125	0.1209	0.56	0.03				98	0.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-02	GAM-A-020	15187	CS-137	329.4564	131.1	707.658	pCi	65.55	g	ARS-007	LCSD	ARS1-B10-04178			75	98.27	15365.62	125	0.5943	0.25	0.09				99	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-02	GAM-A-020	15187	CS-137	329.4564	131.1	707.658	pCi	65.55	g	ARS-007	LCSD	ARS1-B10-04178			75	98.27	15365.62	125	0.5943	0.25	0.09				99	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04178-03	GAM-A-020	-0.00536	AM-241	0.0071099	0.012	0.007120092	pCi	0.006	g	ARS-007	MBL	ARS1-B10-04178		U									n				MBL	MB<MDA
ARS1-B10-04178-03	GAM-A-020	-0.00536	AM-241	0.0071099	0.012	0.007120092	pCi	0.006	g	ARS-007	MBL	ARS1-B10-04178		U									n				MBL	MB<MDA
ARS1-B10-04178-03	GAM-A-020	0	CO-60	0.0046117	0.00817	0.004611684	pCi	0.004085	g	ARS-007	MBL	ARS1-B10-04178		U									n				MBL	MB<MDA
ARS1-B10-04178-03	GAM-A-020	-0.00145	CS-137	0.1956786	0.00625	0.19567856	pCi	0.003125	g	ARS-007	MBL	ARS1-B10-04178		U									n				MBL	MB<MDA
ARS1-B10-04178-03	GAM-A-020	-0.00145	CS-137	0.1956786	0.00625	0.19567856	pCi	0.003125	g	ARS-007	MBL	ARS1-B10-04178		U									n				MBL	MB<MDA
ARS1-B10-04295-01	GAM-A-020	33906	AM-241	416.9704	247.9	2478.616	pCi	123.95	g	ARS-007	LCS	ARS1-B10-04295			75	97.14	34896.7	125		0.40					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	33906	AM-241	416.9704	247.9	2478.616	pCi	123.95	g	ARS-007	LCS	ARS1-B10-04295			75	97.14	34896.7	125		0.40					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	33906	AM-241	416.9704	247.9	2478.616	pCi	123.95	g	ARS-007	LCS	ARS1-B10-04295			75	97.14	34896.7	125		0.40					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	25534	CO-60	485.884	181.1	1024.7468	pCi	90.55	g	ARS-007	LCS	ARS1-B10-04295			75	100.4	25394.58	125		0.14					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	25534	CO-60	485.884	181.1	1024.7468	pCi	90.55	g	ARS-007	LCS	ARS1-B10-04295			75	100.4	25394.58	125		0.14					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	25534	CO-60	485.884	181.1	1024.7468	pCi	90.55	g	ARS-007	LCS	ARS1-B10-04295			75	100.4	25394.58	125		0.14					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	15479	CS-137	358.386	118.9	692.7228	pCi	59.45	g	ARS-007	LCS	ARS1-B10-04295			75	100.7	15365.62	125		0.16					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	15479	CS-137	358.386	118.9	692.7228	pCi	59.45	g	ARS-007	LCS	ARS1-B10-04295			75	100.7	15365.62	125		0.16					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-01	GAM-A-020	15479	CS-137	358.386	118.9	692.7228	pCi	59.45	g	ARS-007	LCS	ARS1-B10-04295			75	100.7	15365.62	125		0.16					101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	34276	AM-241	416.4804	247.6	2504.88	pCi	123.8	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	34896.7	125	1.173	0.25	0.10				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	34276	AM-241	416.4804	247.6	2504.88	pCi	123.8	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	34896.7	125	1.173	0.25	0.10				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	34276	AM-241	416.4804	247.6	2504.88	pCi	123.8	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	34896.7	125	1.173	0.25	0.10				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	25691	CO-60	497.4284	247.2	1035.1544	pCi	123.6	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	25394.58	125	0.6248	0.29	0.11				101	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	25691	CO-60	497.4284	247.2	1035.1544	pCi	123.6	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	25394.58	125	0.6248	0.29	0.11				101	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	25691	CO-60	497.4284	247.2	1035.1544	pCi	123.6	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	25394.58	125	0.6248	0.29	0.11				101	0.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	15205	CS-137	354.0348	130.4	681.492	pCi	65.2	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	15365.62	125	1.7595	0.24	0.28				99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	15205	CS-137	354.0348	130.4	681.492	pCi	65.2	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	15365.62	125	1.7595	0.24	0.28				99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-02	GAM-A-020	15205	CS-137	354.0348	130.4	681.492	pCi	65.2	g	ARS-007	LCSD	ARS1-B10-04295			75	100.7	15365.62	125	1.7595	0.24	0.28				99	1.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04295-03	GAM-A-020	-0.00309	AM-241	0.027783	0.00959	0.027783	pCi	0.004795	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00309	AM-241	0.027783	0.00959	0.027783	pCi	0.004795	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00309	AM-241	0.027783	0.00959	0.027783	pCi	0.004795	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00064	CO-60	0.0060137	0.00603	0.006013868	pCi	0.003015	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00064	CO-60	0.0060137	0.00603	0.006013868	pCi	0.003015	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00064	CO-60	0.0060137	0.00603	0.006013868	pCi	0.003015	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00096	CS-137	0.037485	0.00615	0.037485	pCi	0.003075	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00096	CS-137	0.037485	0.00615	0.037485	pCi	0.003075	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04295-03	GAM-A-020	-0.00096	CS-137	0.037485	0.00615	0.037485	pCi	0.003075	g	ARS-007	MBL	ARS1-B10-04295		U									n				MBL	MB<MDA
ARS1-B10-04348-01	GAM-A-020	34252	AM-241	425.5552	271.4	2437.848	pCi	135.7	g	ARS-007	LCS	ARS1-B10-04348			75	98.29	34896.7	125		0.26					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04348-01	GAM-A-020	24687	CO-60	453.7792	238.6	993.3868	pCi	119.3	g	ARS-007	LCS	ARS1-B10-04348			75	97.23	25394.58	125		0.71					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04348-01	GAM-A-020	15164	CS-137	330.554	127.7	707.3444	pCi	63.85	g	ARS-007	LCS	ARS1-B10-04348			75	98.66	15365.62	125		0.29					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04348-02	GAM-A-020	33791	AM-241	427.7112	274.7	2406.488	pCi	137.35	g	ARS-007	LCSD	ARS1-B10-04348			75	98.66	34896.7	125	1.4684	0.46	0.13				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04348-02	GAM-A-020	24953	CO-60	450.8196	218.7	1000.5408	pCi	109.35	g	ARS-007	LCSD	ARS1-B10-04348			75	98.66	25394.58	125	1.0475	0.44	0.19				98	1.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04348-02	GAM-A-020	15104	CS-137	331.0636	135.3	705.3844	pCi	67.65	g	ARS-007	LCSD	ARS1-B10-04348			75	98.66	15365.62	125	0.3966	0.37	0.06				98	0.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04348-03	GAM-A-020	0.003396	AM-241	0.0048294	0.00814	0.00483532	pCi	0.00407	g	ARS-007	MBL	ARS1-B10-04348		U									n				MBL	MB<MDA
ARS1-B10-04348-03	GAM-A-020	-0.00017	CO-60	0.0026997	0.00473	0.002699704	pCi	0.002365	g	ARS-007	MBL	ARS1-B10-04348		U									n				MBL	MB<MDA
ARS1-B10-04348-03	GAM-A-020	-0.00164	CS-137	0.0638568	0.00489	0.0638568	pCi	0.002445	g	ARS-007	MBL	ARS1-B10-04348		U									n				MBL	MB<MDA
ARS1-B10-04414-01	GAM-A-020	33916	AM-241	411.9528	255.4	2412.368	pCi	127.7	g	ARS-007	LCS	ARS1-B10-04414			75	97.14	34896.7	125		0.41					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	33916	AM-241	411.9528	255.4	2412.368	pCi	127.7	g	ARS-007	LCS	ARS1-B10-04414			75	97.14	34896.7	125		0.41					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	33916	AM-241	411.9528	255.4	2412.368	pCi	127.7	g	ARS-007	LCS	ARS1-B10-04414			75	97.14	34896.7	125		0.41					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	33916	AM-241	411.9528	255.4	2412.368	pCi	127.7	g	ARS-007	LCS	ARS1-B10-04414			75	97.14	34896.7	125		0.41					97		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	24764	CO-60	447.272	204.4	992.8968	pCi	102.2	g	ARS-007	LCS	ARS1-B10-04414			75	97.5	25394.58	125		0.64					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	24764	CO-60	447.272	204.4	992.8968	pCi	102.2	g	ARS-007	LCS	ARS1-B10-04414				97.5	25394.58			0.64					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	24764	CO-60	447.272	204.4	992.8968	pCi	102.2	g	ARS-007	LCS	ARS1-B10-04414			75	97.5	25394.58	125		0.64					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU

Tonawanda Landfill RI Addendum - QA/QC Qualification Worksheet - Soils Radiological

March 2011

ABatchSampleID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	AliqUnits	ProcedureNo	SampleType	ABatch	ChaserRecovery	Lab Qual	LCL	Rec_Prcnt	Spk_Amount	UCL	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DUP)	MB (ACT/TPU > 2.0))	MB > RL	MB > DL	PERCENT RECOVERY	RPD	SampleType	Comment
ARS1-B10-04414-01	GAM-A-020	24764	CO-60	447.272	204.4	992.8968	pCi	102.2	g	ARS-007	LCS	ARS1-B10-04414			75	97.5	25394.58	125		0.64					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	15224	CS-137	340.9224	138.7	714.4004	pCi	69.35	g	ARS-007	LCS	ARS1-B10-04414			75	99.05	15365.62	125		0.20					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	15224	CS-137	340.9224	138.7	714.4004	pCi	69.35	g	ARS-007	LCS	ARS1-B10-04414				99.05	15365.62			0.20					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	15224	CS-137	340.9224	138.7	714.4004	pCi	69.35	g	ARS-007	LCS	ARS1-B10-04414			75	99.05	15365.62	125		0.20					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-01	GAM-A-020	15224	CS-137	340.9224	138.7	714.4004	pCi	69.35	g	ARS-007	LCS	ARS1-B10-04414			75	99.05	15365.62	125		0.20					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	34352	AM-241	402.9172	239.1	2440.788	pCi	119.55	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	34896.7	125	1.4641	0.22	0.13				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	34352	AM-241	402.9172	239.1	2440.788	pCi	119.55	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	34896.7	125	1.4641	0.22	0.13				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	34352	AM-241	402.9172	239.1	2440.788	pCi	119.55	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	34896.7	125	1.4641	0.22	0.13				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	34352	AM-241	402.9172	239.1	2440.788	pCi	119.55	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	34896.7	125	1.4641	0.22	0.13				98	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	25082	CO-60	449.4868	215	1004.0492	pCi	107.5	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	25394.58	125	1.2841	0.31	0.23				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	25082	CO-60	449.4868	215	1004.0492	pCi	107.5	g	ARS-007	LCSD	ARS1-B10-04414				99.05	25394.58		1.2841	0.31	0.23				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	25082	CO-60	449.4868	215	1004.0492	pCi	107.5	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	25394.58	125	1.2841	0.31	0.23				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	25082	CO-60	449.4868	215	1004.0492	pCi	107.5	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	25394.58	125	1.2841	0.31	0.23				99	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	14938	CS-137	338.002	130.5	702.6404	pCi	65.25	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	15365.62	125	1.8568	0.61	0.29				97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	14938	CS-137	338.002	130.5	702.6404	pCi	65.25	g	ARS-007	LCSD	ARS1-B10-04414				99.05	15365.62		1.8568	0.61	0.29				97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	14938	CS-137	338.002	130.5	702.6404	pCi	65.25	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	15365.62	125	1.8568	0.61	0.29				97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-02	GAM-A-020	14938	CS-137	338.002	130.5	702.6404	pCi	65.25	g	ARS-007	LCSD	ARS1-B10-04414			75	99.05	15365.62	125	1.8568	0.61	0.29				97	1.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04414-03	GAM-A-020	-0.00081	AM-241	0.0149332	0.0101	0.01493324	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	-0.00081	AM-241	0.0149332	0.0101	0.01493324	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	-0.00081	AM-241	0.0149332	0.0101	0.01493324	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	-0.00081	AM-241	0.0149332	0.0101	0.01493324	pCi	0.00505	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	0.00049	CO-60	0.0030837	0.0056	0.003083864	pCi	0.0028	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	0.00049	CO-60	0.0030837	0.0056	0.003083864	pCi	0.0028	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	0.00049	CO-60	0.0030837	0.0056	0.003083864	pCi	0.0028	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	0.00049	CO-60	0.0030837	0.0056	0.003083864	pCi	0.0028	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	-0.00078	CS-137	0.0072263	0.00647	0.00722652	pCi	0.003235	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	-0.00078	CS-137	0.0072263	0.00647	0.00722652	pCi	0.003235	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	-0.00078	CS-137	0.0072263	0.00647	0.00722652	pCi	0.003235	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04414-03	GAM-A-020	-0.00078	CS-137	0.0072263	0.00647	0.00722652	pCi	0.003235	g	ARS-007	MBL	ARS1-B10-04414		U									n				MBL	MB<MDA
ARS1-B10-04468-01	GAM-A-020	34458	AM-241	414.5792	255.9	2474.892	pCi	127.95	g	ARS-007	LCS	ARS1-B10-04468			75	98.86	34896.7	125		0.18					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	34842	AM-241	419.1852	258.8	1829.758	pCi	129.4	g	ARS-007	LCS	ARS1-B10-04468			75	99.72	34896.7	125		0.03					100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	34458	AM-241	414.5792	255.9	2474.892	pCi	127.95	g	ARS-007	LCS	ARS1-B10-04468			75	98.86	34896.7	125		0.18					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	25118	CO-60	431.0628	219.3	987.5852	pCi	109.65	g	ARS-007	LCS	ARS1-B10-04468			75	98.92	25394.58	125		0.28					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	25118	CO-60	431.0628	219.3	987.5852	pCi	109.65	g	ARS-007	LCS	ARS1-B10-04468			75	98.92	25394.58	125		0.28					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	25118	CO-60	431.0628	219.3	987.5852	pCi	109.65	g	ARS-007	LCS	ARS1-B10-04468			75	98.92	25394.58	125		0.28					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	15088	CS-137	312.3848	120.1	656.9724	pCi	60.05	g	ARS-007	LCS	ARS1-B10-04468			75	98.21	15365.62	125		0.42					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	15088	CS-137	312.3848	120.1	656.9724	pCi	60.05	g	ARS-007	LCS	ARS1-B10-04468			75	98.21	15365.62	125		0.42					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-01	GAM-A-020	15088	CS-137	312.3848	120.1	656.9724	pCi	60.05	g	ARS-007	LCS	ARS1-B10-04468			75	98.21	15365.62	125		0.42					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	33986	AM-241	407.288	249.2	2440.788	pCi	124.6	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	34896.7	125	1.4599	0.37	0.14				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	34365	AM-241	411.8352	251.9	1804.3368	pCi	125.95	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	34896.7	125	1.3582	0.29	0.19				98	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	33986	AM-241	407.288	249.2	2440.788	pCi	124.6	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	34896.7	125	1.4599	0.37	0.14				97	1.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	24899	CO-60	438.6284	239	983.9788	pCi	119.5	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	25394.58	125	0.8796	0.50	0.16				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	24899	CO-60	438.6284	239	983.9788	pCi	119.5	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	25394.58	125	0.8796	0.50	0.16				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	24899	CO-60	438.6284	239	983.9788	pCi	119.5	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	25394.58	125	0.8796	0.50	0.16				98	0.9	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	14748	CS-137	345.5284	150.5	662.2252	pCi	75.25	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	15365.62	125	2.2788	0.93	0.36				96	2.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	14748	CS-137	345.5284	150.5	662.2252	pCi	75.25	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	15365.62	125	2.2788	0.93	0.36				96	2.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-02	GAM-A-020	14748	CS-137	345.5284	150.5	662.2252	pCi	75.25	g	ARS-007	LCSD	ARS1-B10-04468			75	98.21	15365.62	125	2.2788	0.93	0.36				96	2.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04468-03	GAM-A-020	-0.00082	AM-241	0.0061497	0.0105	0.006149892	pCi	0.00525	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	-0.00083	AM-241	0.0062181	0.0106	0.006218296	pCi	0.0053	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	-0.00082	AM-241	0.0061497	0.0105	0.006149892	pCi	0.00525	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	-0.00126	CO-60	0.0033326	0.00583	0.003333372	pCi	0.002915	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	0.001808	CO-60	0.0034851	0.00609	0.003485664	pCi	0.003045	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	-0.00126	CO-60	0.0033326	0.00583	0.003333372	pCi	0.002915	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	-0.00144	CS-137	0.1746948	0.00686	0.1746948	pCi	0.00343	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	-0.00133	CS-137	0.0651014	0.0069	0.0651014	pCi	0.00345	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04468-03	GAM-A-020	-0.00144	CS-137	0.1746948	0.00686	0.1746948	pCi	0.00343	g	ARS-007	MBL	ARS1-B10-04468		U									n				MBL	MB<MDA
ARS1-B10-04510-01	GAM-A-020	34318	AM-241	432.5132	281.6	1806.826	pCi	140.8	g	ARS-007	LCS	ARS1-B10-04510			75	98.29	34896.7	125		0.32					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-01	GAM-A-020	34318	AM-241	432.5132	281.6	1806.826	pCi	140.8	g	ARS-007	LCS	ARS1-B10-04510			75	98.29	34896.7	125		0.32					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-01	GAM-A-020	25253	CO-60	459.6788	204.9	1007.4008	pCi	102.45	g	ARS-007	LCS	ARS1-B10-04510			75	99.63	25394.58	125		0.14					99		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-01	GAM-A-020	15035	CS-137	339.2172	164.7	694.8004	pCi	82.35	g	ARS-007	LCS	ARS1-B10-04510			75	97.88	15365.62	125		0.48					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-01	GAM-A-020	15035	CS-137	339.2172	164.7	694.8004	pCi	82.35	g	ARS-007	LCS	ARS1-B10-04510			75	97.88	15365.62	125		0.48					98		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-02	GAM-A-020	34305	AM-241	434.1008	284.8	1806.5908	pCi	142.4	g	ARS-007	LCSD	ARS1-B10-04510			75	97.88	34896.7	125	0.0291	0.33	0.01				98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-02	GAM-A-020	34305	AM-241	434.1008	284.8	1806.5908	pCi	142.4	g	ARS-007	LCSD	ARS1-B10-04510			75	97.88	34896.7	125	0.0291	0.33	0.01				98	0.0	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-02	GAM-A-020	24828	CO-60	456.6212	263	992.6028	pCi	131.5	g	ARS-007	LCSD	ARS1-B10-04510			75	97.88	25394.58	125	1.6773	0.57	0.30				98	1.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-02	GAM-A-020	14792	CS-137	351.6828	170.6	692.4876	pCi	85.3	g	ARS-007	LCSD	ARS1-B10-04510			75	97.88	15365.62	125	1.6762	0.83	0.25				96	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-02	GAM-A-020	14792	CS-137	351.6828	170.6	692.4876	pCi	85.3	g	ARS-007	LCSD	ARS1-B10-04510			75	97.88	15365.62	125	1.6762	0.83	0.25				96	1.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-04510-03	GAM-A-020	-0.00128	AM-241	0.0071934	0.0123	0.007193592	pCi	0.00615	g	ARS-007	MBL	ARS1-B10-04510		U									n				MBL	MB<MDA
ARS1-B10-04510-03	GAM-A-020	-0.00128	AM-241	0.0071934	0.0123	0.007193592	pCi	0.00615	g	ARS-007	MBL	ARS1-B10-04510		U									n				MBL	MB<MDA
ARS1-B10-04510-03	GAM-A-020	0.001309	CO-60	0.0035127	0.0062	0.003513104	pCi	0.0031	g	ARS-007	MBL	ARS1-B10-04510		U									n				MBL	MB<MDA
ARS1-B10-04510-03	GAM-A-020	0.000715	CS-137	0.0036868	0.00654	0.00368676	pCi	0.00327	g	ARS-007	MBL	ARS1-B10-04510		U									n				MBL	MB<MDA
ARS1-B10-04510-03	GAM-A-020	0.000715	CS-137	0.0036868	0.00654	0.00368676	pCi	0.00327	g	ARS-007	MBL	ARS1-B10-04510		U									n				MBL	MB<MDA

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-00943-19	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	ASP-A-009	TH-228	0.708426	0.090961	0.12492	0.022196	0.007013	pCi	g	ARS1-B10-00943	0.45616	1						
ARS1-B10-00943-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	ASP-A-009	TH-228	0.412944	0.084267	0.097938	0.056557	0.022846	pCi	g	ARS1-B10-00943	0.35729	1						
ARS1-B10-00943-09	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	ASP-A-009	TH-228	0.657144	0.082793	0.114729	0.01983	0.006265	pCi	g	ARS1-B10-00943	0.54088	1						
ARS1-B10-00943-14	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	ASP-A-009	TH-228	0.595575	0.059797	0.093579	0.016573	0.006201	pCi	g	ARS1-B10-00943	0.95706	1						
ARS1-B10-00943-22	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	ASP-A-009	TH-228	0.734707	0.062256	0.108447	0.012663	0.004485	pCi	g	ARS1-B10-00943	1.00148	1						
ARS1-B10-00943-21	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	ASP-A-009	TH-228	0.890802	0.085595	0.137542	0.022732	0.008506	pCi	g	ARS1-B10-00943	0.63352	1						
ARS1-B10-00943-20	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	ASP-A-009	TH-228	0.794085	0.077426	0.123311	0.020857	0.007804	pCi	g	ARS1-B10-00943	0.68015	1						
ARS1-B10-00943-23	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	ASP-A-009	TH-228	0.526515	0.059085	0.086836	0.01583	0.005606	pCi	g	ARS1-B10-00943	0.75698	1						
ARS1-B10-00943-08	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	ASP-A-009	TH-228	0.702716	0.075819	0.11385	0.005771	0	pCi	g	ARS1-B10-00943	0.6533	1						
ARS1-B10-00943-07	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	ASP-A-009	TH-228	0.514138	0.053942	0.082286	0.003992	0	pCi	g	ARS1-B10-00943	1.0079	1						
ARS1-B10-00943-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	ASP-A-009	TH-228	1.285452	0.104421	0.187191	0.028475	0.011295	pCi	g	ARS1-B10-00943	0.70828	1						
ARS1-B10-00943-11	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	ASP-A-009	TH-228	2.728276	0.190132	0.38063	0.025331	0.008004	pCi	g	ARS1-B10-00943	0.41814	1						
ARS1-B10-00943-13	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	ASP-A-009	TH-228	0.924124	0.09429	0.146169	0.01834	0.005795	pCi	g	ARS1-B10-00943	0.56592	1						
ARS1-B10-00943-12	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	ASP-A-009	TH-228	0.694852	0.068095	0.108119	0.004708	0	pCi	g	ARS1-B10-00943	0.78941	1						
ARS1-B10-00943-17	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	ASP-A-009	TH-228	0.74192	0.059564	0.10765	0.009135	0.002886	pCi	g	ARS1-B10-00943	0.99625	1						
ARS1-B10-00943-16	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	ASP-A-009	TH-228	0.76849	0.070001	0.116305	0.004498	0	pCi	g	ARS1-B10-00943	0.87568	1						
ARS1-B10-00943-15	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	ASP-A-009	TH-228	1.078599	0.095008	0.161308	0.025765	0.009977	pCi	g	ARS1-B10-00943	0.63506	1						
ARS1-B10-00943-18	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	ASP-A-009	TH-228	0.787936	0.080945	0.124984	0.015851	0.005008	pCi	g	ARS1-B10-00943	0.66566	1						
ARS1-B10-00943-19	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	ASP-A-009	TH-230	1.062721	0.110848	0.16966	0.031878	0.011928	pCi	g	ARS1-B10-00943	0.45616	1						
ARS1-B10-00943-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	ASP-A-009	TH-230	1.279806	0.13957	0.208338	0.028994	0.009161	pCi	g	ARS1-B10-00943	0.35729	1						
ARS1-B10-00943-09	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	ASP-A-009	TH-230	2.076908	0.145661	0.290217	0.024579	0.008704	pCi	g	ARS1-B10-00943	0.54088	1						
ARS1-B10-00943-14	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	ASP-A-009	TH-230	1.35278	0.089613	0.186446	0.026335	0.011119	pCi	g	ARS1-B10-00943	0.95706	1						
ARS1-B10-00943-22	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	ASP-A-009	TH-230	0.836082	0.065916	0.120648	0.014429	0.005399	pCi	g	ARS1-B10-00943	1.00148	1						
ARS1-B10-00943-21	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	ASP-A-009	TH-230	0.867323	0.083346	0.133921	0.015277	0.004827	pCi	g	ARS1-B10-00943	0.63352	1						
ARS1-B10-00943-20	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	ASP-A-009	TH-230	0.793896	0.077108	0.123094	0.024967	0.009904	pCi	g	ARS1-B10-00943	0.68015	1						
ARS1-B10-00943-23	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	ASP-A-009	TH-230	0.557748	0.060265	0.090421	0.01556	0.00551	pCi	g	ARS1-B10-00943	0.75698	1						
ARS1-B10-00943-08	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	ASP-A-009	TH-230	0.725778	0.077023	0.116734	0.022524	0.008428	pCi	g	ARS1-B10-00943	0.6533	1						
ARS1-B10-00943-07	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	ASP-A-009	TH-230	0.567216	0.056295	0.088706	0.010654	0.003366	pCi	g	ARS1-B10-00943	1.0079	1						
ARS1-B10-00943-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	ASP-A-009	TH-230	2.05812	0.130125	0.280726	0.019813	0.007017	pCi	g	ARS1-B10-00943	0.70828	1						
ARS1-B10-00943-11	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	ASP-A-009	TH-230	2.595708	0.184774	0.364089	0.044323	0.017582	pCi	g	ARS1-B10-00943	0.41814	1						
ARS1-B10-00943-13	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	ASP-A-009	TH-230	0.888271	0.091379	0.140981	0.006631	0	pCi	g	ARS1-B10-00943	0.56592	1						
ARS1-B10-00943-12	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	ASP-A-009	TH-230	0.761111	0.071582	0.116558	0.024074	0.009725	pCi	g	ARS1-B10-00943	0.78941	1						
ARS1-B10-00943-17	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	ASP-A-009	TH-230	0.85541	0.063818	0.121496	0.01719	0.006944	pCi	g	ARS1-B10-00943	0.99625	1						
ARS1-B10-00943-16	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	ASP-A-009	TH-230	0.846072	0.072931	0.1256	0.012003	0.003792	pCi	g	ARS1-B10-00943	0.87568	1						
ARS1-B10-00943-15	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	ASP-A-009	TH-230	1.246791	0.101281	0.181561	0.027619	0.010956	pCi	g	ARS1-B10-00943	0.63506	1						
ARS1-B10-00943-18	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	ASP-A-009	TH-230	0.845777	0.083916	0.132253	0.027729	0.010999	pCi	g	ARS1-B10-00943	0.66566	1						
ARS1-B10-00943-19	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	ASP-A-009	TH-232	0.771074	0.093905	0.132299	0.021752	0.006873	pCi	g	ARS1-B10-00943	0.45616	1						
ARS1-B10-00943-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	ASP-A-009	TH-232	0.522688	0.089498	0.109548	0.028936	0.009143	pCi	g	ARS1-B10-00943	0.35729	1						
ARS1-B10-00943-09	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	ASP-A-009	TH-232	0.789495	0.090382	0.131429	0.028435	0.010639	pCi	g	ARS1-B10-00943	0.54088	1						
ARS1-B10-00943-14	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	ASP-A-009	TH-232	0.662215	0.062509	0.101553	0.018125	0.007019	pCi	g	ARS1-B10-00943	0.95706	1						
ARS1-B10-00943-22	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	ASP-A-009	TH-232	0.809003	0.064678	0.117233	0.012423	0.004399	pCi	g	ARS1-B10-00943	1.00148	1						
ARS1-B10-00943-21	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	ASP-A-009	TH-232	0.904933	0.085233	0.13866	0.019238	0.006813	pCi	g	ARS1-B10-00943	0.63352	1						
ARS1-B10-00943-20	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	ASP-A-009	TH-232	0.811308	0.077133	0.124757	0.013989	0.00442	pCi	g	ARS1-B10-00943	0.68015	1						
ARS1-B10-00943-23	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	ASP-A-009	TH-232	0.580034	0.061556	0.093293	0.018001	0.006735	pCi	g	ARS1-B10-00943	0.75698	1						
ARS1-B10-00943-08	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	ASP-A-009	TH-232	0.728501	0.07665	0.116737	0.015369	0.004856	pCi	g	ARS1-B10-00943	0.6533	1						
ARS1-B10-00943-07	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	ASP-A-009	TH-232	0.496765	0.052496	0.079753	0.003913	0	pCi	g	ARS1-B10-00943	1.0079	1						
ARS1-B10-00943-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	ASP-A-009	TH-232	1.33457	0.10463	0.19226	0.015672	0.004952	pCi	g	ARS1-B10-00943	0.70828	1						
ARS1-B10-00943-11	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	ASP-A-009	TH-232	2.58377	0.183692	0.362297	0.036324	0.013591	pCi	g	ARS1-B10-00943	0.41814	1						
ARS1-B10-00943-13	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	ASP-A-009	TH-232	0.964643	0.095612	0.150779	0.022687	0.008035	pCi	g	ARS1-B10-00943	0.56592	1						
ARS1-B10-00943-12	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	ASP-A-009	TH-232	0.648886	0.065157	0.10196	0.004615	0	pCi	g	ARS1-B10-00943	0.78941	1						
ARS1-B10-00943-17	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	ASP-A-009	TH-232	0.791678	0.060815	0.113374	0.003296	0	pCi	g	ARS1-B10-00943	0.99625	1						
ARS1-B10-00943-16	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	ASP-A-009	TH-232	0.891561	0.074784	0.131163	0.011979	0.003785	pCi	g	ARS1-B10-00943	0.87568	1						
ARS1-B10-00943-15	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	ASP-A-009	TH-232	1.137102	0.097227	0.168346	0.033356	0.01383	pCi	g	ARS1-B10-00943	0.63506	1						
ARS1-B10-00943-18	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	ASP-A-009	TH-232	0.829313	0.086462	0.13237	0.051771	0.023026	pCi	g	ARS1-B10-00943	0.66566	1						
ARS1-B10-00944-04	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	ASP-A-009	TH-228	0.821595	0.078764	0.126743	0.005327	0	pCi	g	ARS1-B10-00944	0.72773	1						
ARS1-B10-00944-10	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	ASP-A-009	TH-228	0.526729	0.059113	0.086874	0.012633	0.003991	pCi	g	ARS1-B10-00944	0.76208	1						
ARS1-B10-00944-08	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	ASP-A-009	TH-228	0.806783	0.079968	0.126106	0.015115	0.004776	pCi	g	ARS1-B10-00944	0.61201	1						
ARS1-B10-00944-09	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	ASP-A-009	TH-228	0.815226	0.090026	0.133464	0.018935	0.005983	pCi	g	ARS1-B10-00944	0.5553	1						
ARS1-B10-00944-07	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	ASP-A-009	TH-228	0.78115	0.071932	0.118691	0.015879	0.005624	pCi	g	ARS1-B10-00944	0.79984	1						
ARS1-B10-00944-06	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	ASP-A-009	TH-228	0.61503	0.066662	0.099846	0.005097	0	pCi	g	ARS1-B10-00944	0.74802	1						
ARS1-B10-00944-05	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	ASP-A-009	TH-228	0.872828	0.082691	0.134037	0.014945	0.004722	pCi	g	ARS1-B10-00944	0.65149	1						
ARS1-B10-00944-14	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	ASP-A-009	TH-228	0.760015	0.093468	0.131048	0.008109	0	pCi	g	ARS1-B10-00944	0.49986	1						
ARS1-B10-00944-13	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	ASP-A-009	TH-228	0.715563	0.077067	0.115839	0.025362	0.009821	pCi	g	ARS1-B10-00944	0.70108	1						
ARS1-B10-00944-12	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	ASP-A-009	TH-228	0.861338	0.089589	0.137344	0.025694	0.009614	pCi	g	ARS1-B10-00944	0.58474	1						
ARS1-B10-00944-11	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	ASP-A-009	TH-228	0.899516	0.096463	0.145342	0.024723	0.008756	pCi	g	ARS1-B10-00944	0.57798	1						
ARS1-B10-00944-04	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	ASP-A-009	TH-230	0.85733	0.08064	0.131299	0.025322	0.010045	pCi	g	ARS1-B10-00944	0.72773	1						
ARS1-B10-00944-10	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	ASP-A-009	TH-230	0.670902	0.066079	0.104601	0.012411	0.003922	pCi	g	ARS1-B10-00944	0.76208	1						
ARS1-B10-00944-08	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	ASP-A-009	TH-230	0.826845	0.080814	0.12852	0.024232	0.009383	pCi	g	ARS1-B10-00944	0.61201	1						
ARS1-B10-00944-09	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	ASP-A-009	TH-230	0.866541	0.093296	0.140259	0.035639	0.014396	pCi	g	ARS1-B10-00944	0.5553	1						
ARS1-B10-00944-07	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	ASP-A-009	TH-230	0.785872	0.072408	0.119433	0.026649	0.011049	pCi	g	ARS1-B10-00944	0.79984	1						
ARS1-B10-00944-06	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	ASP-A-009	TH-230	0.794517	0.075446	0.122119	0.017165	0.006079	pCi	g	ARS1-B10-00944	0.74802	1						
ARS1-B10-00944-05	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	ASP-A-009	TH-230	0.887371	0.083369	0.13584	0.02615	0.010373	pCi	g	ARS1-B10-00944	0.65149	1						
ARS1-B10-00944-14	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	ASP-A-009	TH-230	0.823449	0.096623	0.138711	0.021576	0.006817	pCi	g	ARS1-B10-00944	0.49986	1						
ARS1-B10-00944-13	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	ASP-A-009	TH-230	0.886842	0.084894	0.136731	0.027109	0.010754	pCi	g	ARS1-B10-00944	0.70108	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-00944-12	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	ASP-A-009	TH-230	0.736064	0.083827	0.122233	0.040713	0.01719	pCi	g	ARS1-B10-00944	0.58474	1						
ARS1-B10-00944-11	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	ASP-A-009	TH-230	1.079868	0.1044	0.167132	0.019251	0.006083	pCi	g	ARS1-B10-00944	0.57798	1						
ARS1-B10-00944-04	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	ASP-A-009	TH-232	0.784313	0.076758	0.121973	0.020752	0.007765	pCi	g	ARS1-B10-00944	0.72773	1						
ARS1-B10-00944-10	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	ASP-A-009	TH-232	0.590491	0.061951	0.094505	0.012386	0.003914	pCi	g	ARS1-B10-00944	0.76208	1						
ARS1-B10-00944-08	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	ASP-A-009	TH-232	0.899659	0.083589	0.13715	0.014819	0.004682	pCi	g	ARS1-B10-00944	0.61201	1						
ARS1-B10-00944-09	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	ASP-A-009	TH-232	0.796732	0.088401	0.130718	0.023423	0.008295	pCi	g	ARS1-B10-00944	0.5553	1						
ARS1-B10-00944-07	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	ASP-A-009	TH-232	0.802735	0.072635	0.121196	0.021977	0.008718	pCi	g	ARS1-B10-00944	0.79984	1						
ARS1-B10-00944-06	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	ASP-A-009	TH-232	0.866689	0.078688	0.131012	0.017131	0.006067	pCi	g	ARS1-B10-00944	0.74802	1						
ARS1-B10-00944-05	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	ASP-A-009	TH-232	0.923408	0.085813	0.140781	0.034674	0.014641	pCi	g	ARS1-B10-00944	0.65149	1						
ARS1-B10-00944-14	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	ASP-A-009	TH-232	0.739914	0.091535	0.127968	0.021533	0.006804	pCi	g	ARS1-B10-00944	0.49986	1						
ARS1-B10-00944-13	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	ASP-A-009	TH-232	0.83968	0.083166	0.131208	0.032741	0.013575	pCi	g	ARS1-B10-00944	0.70108	1						
ARS1-B10-00944-12	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	ASP-A-009	TH-232	0.746252	0.082781	0.122423	0.028021	0.01085	pCi	g	ARS1-B10-00944	0.58474	1						
ARS1-B10-00944-11	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	ASP-A-009	TH-232	1.030737	0.101907	0.160947	0.019213	0.006071	pCi	g	ARS1-B10-00944	0.57798	1						
ARS1-B10-01369-05	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	ASP-A-009	TH-228	0.916714	0.100412	0.149526	0.033582	0.013004	pCi	g	ARS1-B10-01369	0.5377	1						
ARS1-B10-01369-08	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	ASP-A-009	TH-228	0.764825	0.091911	0.130354	0.021012	0.006639	pCi	g	ARS1-B10-01369	0.47822	1						
ARS1-B10-01369-06	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	ASP-A-009	TH-228	0.82488	0.089271	0.133823	0.006815	0	pCi	g	ARS1-B10-01369	0.55052	1						
ARS1-B10-01369-13	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	ASP-A-009	TH-228	0.76357	0.092107	0.130385	0.021135	0.006678	pCi	g	ARS1-B10-01369	0.50105	1						
ARS1-B10-01369-11	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	ASP-A-009	TH-228	0.917937	0.08918	0.142342	0.016525	0.005221	pCi	g	ARS1-B10-01369	0.58154	1						
ARS1-B10-01369-12	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	ASP-A-009	TH-228	0.924981	0.082663	0.139036	0.0141	0.004455	pCi	g	ARS1-B10-01369	0.70227	1						
ARS1-B10-01369-15	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	ASP-A-009	TH-228	0.902	0.092405	0.14291	0.022648	0.00802	pCi	g	ARS1-B10-01369	0.53709	1						
ARS1-B10-01369-16	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	ASP-A-009	TH-228	1.40733	0.154925	0.230071	0.012031	0	pCi	g	ARS1-B10-01369	0.32182	1						
ARS1-B10-01369-17	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	ASP-A-009	TH-228	0.76973	0.095507	0.133327	0.041603	0.016806	pCi	g	ARS1-B10-01369	0.49417	1						
ARS1-B10-01369-18	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	ASP-A-009	TH-228	0.705536	0.074313	0.113109	0.02599	0.010309	pCi	g	ARS1-B10-01369	0.68582	1						
ARS1-B10-01369-04	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	ASP-A-009	TH-228	0.655896	0.103187	0.130121	0.043871	0.016415	pCi	g	ARS1-B10-01369	0.36998	1						
ARS1-B10-01369-09	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	ASP-A-009	TH-228	0.9523	0.114656	0.162459	0.026261	0.008297	pCi	g	ARS1-B10-01369	0.42518	1						
ARS1-B10-01369-14	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	ASP-A-009	TH-228	0.74355	0.088683	0.126256	0.02521	0.008928	pCi	g	ARS1-B10-01369	0.56571	1						
ARS1-B10-01369-05	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	ASP-A-009	TH-230	1.008438	0.103704	0.160029	0.035455	0.014064	pCi	g	ARS1-B10-01369	0.5377	1						
ARS1-B10-01369-08	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	ASP-A-009	TH-230	0.886044	0.097532	0.144846	0.025643	0.009081	pCi	g	ARS1-B10-01369	0.47822	1						
ARS1-B10-01369-06	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	ASP-A-009	TH-230	0.878226	0.090847	0.139712	0.017912	0.00566	pCi	g	ARS1-B10-01369	0.55052	1						
ARS1-B10-01369-13	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	ASP-A-009	TH-230	0.819227	0.093803	0.136391	0.020447	0.00646	pCi	g	ARS1-B10-01369	0.50105	1						
ARS1-B10-01369-11	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	ASP-A-009	TH-230	1.072577	0.095347	0.160921	0.026088	0.010102	pCi	g	ARS1-B10-01369	0.58154	1						
ARS1-B10-01369-12	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	ASP-A-009	TH-230	0.948569	0.083123	0.141608	0.026135	0.010557	pCi	g	ARS1-B10-01369	0.70227	1						
ARS1-B10-01369-15	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	ASP-A-009	TH-230	1.151024	0.102958	0.173069	0.02834	0.010974	pCi	g	ARS1-B10-01369	0.53709	1						
ARS1-B10-01369-16	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	ASP-A-009	TH-230	1.421759	0.15363	0.230498	0.031626	0.009993	pCi	g	ARS1-B10-01369	0.32182	1						
ARS1-B10-01369-17	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	ASP-A-009	TH-230	0.796098	0.09375	0.134338	0.021009	0.006638	pCi	g	ARS1-B10-01369	0.49417	1						
ARS1-B10-01369-18	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	ASP-A-009	TH-230	0.753577	0.074884	0.11791	0.017814	0.006309	pCi	g	ARS1-B10-01369	0.68582	1						
ARS1-B10-01369-04	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	ASP-A-009	TH-230	0.969446	0.125975	0.172041	0.068662	0.028991	pCi	g	ARS1-B10-01369	0.36998	1						
ARS1-B10-01369-09	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	ASP-A-009	TH-230	1.328411	0.134408	0.209386	0.045248	0.017949	pCi	g	ARS1-B10-01369	0.42518	1						
ARS1-B10-01369-14	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	ASP-A-009	TH-230	0.876929	0.094329	0.141884	0.019331	0.006108	pCi	g	ARS1-B10-01369	0.56571	1						
ARS1-B10-01369-05	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	ASP-A-009	TH-232	0.920079	0.099922	0.149499	0.04282	0.017754	pCi	g	ARS1-B10-01369	0.5377	1						
ARS1-B10-01369-08	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	ASP-A-009	TH-232	1.024763	0.104974	0.162355	0.029665	0.0111	pCi	g	ARS1-B10-01369	0.47822	1						
ARS1-B10-01369-06	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	ASP-A-009	TH-232	0.796348	0.086445	0.129369	0.017876	0.005648	pCi	g	ARS1-B10-01369	0.55052	1						
ARS1-B10-01369-13	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	ASP-A-009	TH-232	0.947848	0.100751	0.152558	0.020406	0.006448	pCi	g	ARS1-B10-01369	0.50105	1						
ARS1-B10-01369-11	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	ASP-A-009	TH-232	0.972922	0.090194	0.148195	0.015954	0.005041	pCi	g	ARS1-B10-01369	0.58154	1						
ARS1-B10-01369-12	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	ASP-A-009	TH-232	0.891202	0.079892	0.134106	0.017177	0.006083	pCi	g	ARS1-B10-01369	0.70227	1						
ARS1-B10-01369-15	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	ASP-A-009	TH-232	0.854479	0.089582	0.136712	0.035356	0.014489	pCi	g	ARS1-B10-01369	0.53709	1						
ARS1-B10-01369-16	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	ASP-A-009	TH-232	1.277451	0.146012	0.212501	0.039824	0.014103	pCi	g	ARS1-B10-01369	0.32182	1						
ARS1-B10-01369-17	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	ASP-A-009	TH-232	0.828677	0.095539	0.138415	0.020967	0.006625	pCi	g	ARS1-B10-01369	0.49417	1						
ARS1-B10-01369-18	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	ASP-A-009	TH-232	0.811393	0.077415	0.12494	0.01409	0.004452	pCi	g	ARS1-B10-01369	0.68582	1						
ARS1-B10-01369-04	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	ASP-A-009	TH-232	0.605674	0.098114	0.122413	0.047256	0.018299	pCi	g	ARS1-B10-01369	0.36998	1						
ARS1-B10-01369-09	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	ASP-A-009	TH-232	1.002063	0.123532	0.172997	0.084481	0.037575	pCi	g	ARS1-B10-01369	0.42518	1						
ARS1-B10-01369-14	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	ASP-A-009	TH-232	0.788705	0.089398	0.130685	0.019293	0.006096	pCi	g	ARS1-B10-01369	0.56571	1						
ARS1-B10-01371-08	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	ASP-A-009	TH-228	0.695793	0.070517	0.109747	0.013625	0.004305	pCi	g	ARS1-B10-01371	0.77134	1						
ARS1-B10-01371-10	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	ASP-A-009	TH-228	0.834023	0.083968	0.131192	0.005964	0	pCi	g	ARS1-B10-01371	0.67249	1						
ARS1-B10-01371-11	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	ASP-A-009	TH-228	0.674973	0.069724	0.107314	0.013728	0.004338	pCi	g	ARS1-B10-01371	0.77004	1						
ARS1-B10-01371-09	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	ASP-A-009	TH-228	0.537335	0.097476	0.117129	0.055925	0.022184	pCi	g	ARS1-B10-01371	0.34019	1						
ARS1-B10-01371-16	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	ASP-A-009	TH-228	0.707048	0.074417	0.113315	0.040546	0.017733	pCi	g	ARS1-B10-01371	0.65739	1						
ARS1-B10-01371-13	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	ASP-A-009	TH-228	1.008142	0.089628	0.151259	0.019114	0.006769	pCi	g	ARS1-B10-01371	0.7016	1						
ARS1-B10-01371-14	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	ASP-A-009	TH-228	0.771711	0.071951	0.117797	0.032231	0.013874	pCi	g	ARS1-B10-01371	0.76005	1						
ARS1-B10-01371-15	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	ASP-A-009	TH-228	0.75435	0.079894	0.121224	0.047668	0.021146	pCi	g	ARS1-B10-01371	0.66078	1						
ARS1-B10-01371-17	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	ASP-A-009	TH-228	0.824486	0.087537	0.132637	0.040286	0.017041	pCi	g	ARS1-B10-01371	0.53626	1						
ARS1-B10-01371-18	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	ASP-A-009	TH-228	0.862791	0.07391	0.127814	0.015196	0.005382	pCi	g	ARS1-B10-01371	0.80394	1						
ARS1-B10-01371-04	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	ASP-A-009	TH-228	1.303952	0.151623	0.218692	0.048421	0.018118	pCi	g	ARS1-B10-01371	0.31918	1						
ARS1-B10-01371-05	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	ASP-A-009	TH-228	0.754056	0.091298	0.129	0.026335	0.009326	pCi	g	ARS1-B10-01371	0.50713	1						
ARS1-B10-01371-06	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	ASP-A-009	TH-228	0.784629	0.077969	0.122768	0.018548	0.006569	pCi	g	ARS1-B10-01371	0.72641	1						
ARS1-B10-01371-07	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	ASP-A-009	TH-228	1.368765	0.102579	0.194652	0.005423	0	pCi	g	ARS1-B10-01371	0.74379	1						
ARS1-B10-01371-12	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	ASP-A-009	TH-228	0.797633	0.08183	0.12645	0.005922	0	pCi	g	ARS1-B10-01371	0.64568	1						
ARS1-B10-01371-08	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	ASP-A-009	TH-230	0.853747	0.077097	0.128806	0.019274	0.007212	pCi	g	ARS1-B10-01371	0.77134	1						
ARS1-B10-01371-10	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	ASP-A-009	TH-230	0.908841	0.087208	0.140252	0.027912	0.011072	pCi	g	ARS1-B10-01371	0.67249	1						
ARS1-B10-01371-11	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	ASP-A-009	TH-230	0.762851	0.073553	0.117943	0.02365	0.009381	pCi	g	ARS1-B10-01371	0.77004	1						
ARS1-B10-01371-09	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	ASP-A-009	TH-230	0.581585	0.099999	0.122232	0.058187	0.023504	pCi	g	ARS1-B10-01371	0.34019	1						
ARS1-B10-01371-16	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	ASP-A-009	TH-230	0.870067	0.078635	0.131306	0.023765	0.009427	pCi	g	ARS1-B10-01371	0.65739	1						
ARS1-B10-01371-13	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	ASP-A-009	TH-230	1.253761	0.099139	0.18108	0.031583	0.013095	pCi	g	ARS1-B10-01371	0.7016	1						
ARS1-B10-01371-14	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	ASP-A-009	TH-230	0.80286	0.070925	0.120191	0.020971	0.008319	pCi	g	ARS1-B10-01371	0.76005	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01371-15	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	ASP-A-009	TH-230	0.842467	0.07985	0.129397	0.027053	0.010928	pCi	g	ARS1-B10-01371	0.66078	1						
ARS1-B10-01371-17	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	ASP-A-009	TH-230	0.823141	0.085024	0.130868	0.03145	0.012726	pCi	g	ARS1-B10-01371	0.53626	1						
ARS1-B10-01371-18	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	ASP-A-009	TH-230	0.879515	0.073835	0.129426	0.021695	0.008705	pCi	g	ARS1-B10-01371	0.80394	1						
ARS1-B10-01371-04	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	ASP-A-009	TH-230	1.131017	0.140099	0.195738	0.057046	0.022629	pCi	g	ARS1-B10-01371	0.31918	1						
ARS1-B10-01371-05	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	ASP-A-009	TH-230	0.825509	0.094185	0.137205	0.029534	0.011051	pCi	g	ARS1-B10-01371	0.50713	1						
ARS1-B10-01371-06	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	ASP-A-009	TH-230	0.795801	0.077216	0.123342	0.017944	0.006355	pCi	g	ARS1-B10-01371	0.72641	1						
ARS1-B10-01371-07	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	ASP-A-009	TH-230	1.403226	0.102426	0.198125	0.017981	0.006368	pCi	g	ARS1-B10-01371	0.74379	1						
ARS1-B10-01371-12	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	ASP-A-009	TH-230	0.953309	0.088373	0.145206	0.019637	0.006954	pCi	g	ARS1-B10-01371	0.64568	1						
ARS1-B10-01371-08	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	ASP-A-009	TH-232	0.73236	0.071063	0.11351	0.013152	0.004155	pCi	g	ARS1-B10-01371	0.77134	1						
ARS1-B10-01371-10	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	ASP-A-009	TH-232	0.843298	0.083579	0.131808	0.022875	0.008559	pCi	g	ARS1-B10-01371	0.67249	1						
ARS1-B10-01371-11	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	ASP-A-009	TH-232	0.754126	0.073913	0.117347	0.031359	0.013241	pCi	g	ARS1-B10-01371	0.77004	1						
ARS1-B10-01371-09	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	ASP-A-009	TH-232	0.539257	0.093048	0.113603	0.030309	0.009576	pCi	g	ARS1-B10-01371	0.34019	1						
ARS1-B10-01371-16	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	ASP-A-009	TH-232	0.607919	0.065212	0.098239	0.013907	0.004503	pCi	g	ARS1-B10-01371	0.65739	1						
ARS1-B10-01371-13	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	ASP-A-009	TH-232	1.147975	0.094395	0.167811	0.026046	0.010332	pCi	g	ARS1-B10-01371	0.7016	1						
ARS1-B10-01371-14	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	ASP-A-009	TH-232	0.74711	0.068021	0.11305	0.015755	0.005715	pCi	g	ARS1-B10-01371	0.76005	1						
ARS1-B10-01371-15	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	ASP-A-009	TH-232	0.804973	0.078386	0.124938	0.03042	0.012617	pCi	g	ARS1-B10-01371	0.66078	1						
ARS1-B10-01371-17	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	ASP-A-009	TH-232	0.668753	0.076388	0.111211	0.027229	0.010621	pCi	g	ARS1-B10-01371	0.53626	1						
ARS1-B10-01371-18	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	ASP-A-009	TH-232	0.638055	0.062979	0.099565	0.02082	0.008271	pCi	g	ARS1-B10-01371	0.80394	1						
ARS1-B10-01371-04	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	ASP-A-009	TH-232	1.328457	0.149334	0.21927	0.031964	0.0101	pCi	g	ARS1-B10-01371	0.31918	1						
ARS1-B10-01371-05	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	ASP-A-009	TH-232	0.829332	0.093996	0.137412	0.025427	0.009005	pCi	g	ARS1-B10-01371	0.50713	1						
ARS1-B10-01371-06	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	ASP-A-009	TH-232	0.747944	0.074997	0.117457	0.020759	0.007767	pCi	g	ARS1-B10-01371	0.72641	1						
ARS1-B10-01371-07	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	ASP-A-009	TH-232	1.477683	0.105261	0.207305	0.023209	0.008987	pCi	g	ARS1-B10-01371	0.74379	1						
ARS1-B10-01371-12	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	ASP-A-009	TH-232	0.896554	0.085639	0.138114	0.019598	0.00694	pCi	g	ARS1-B10-01371	0.64568	1						
ARS1-B10-01398-10	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	ASP-A-009	TH-228	0.752617	0.104028	0.138187	0.034106	0.012079	pCi	g	ARS1-B10-01398	0.4024	1						
ARS1-B10-01398-11	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	ASP-A-009	TH-228	0.765143	0.116327	0.148606	0.047905	0.017925	pCi	g	ARS1-B10-01398	0.33724	1						
ARS1-B10-01398-12	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	ASP-A-009	TH-228	0.942404	0.105731	0.155409	0.036177	0.014009	pCi	g	ARS1-B10-01398	0.51613	1						
ARS1-B10-01398-13	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	ASP-A-009	TH-228	0.753835	0.096795	0.132929	0.008768	0	pCi	g	ARS1-B10-01398	0.42247	1						
ARS1-B10-01398-14	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	ASP-A-009	TH-228	0.834004	0.095171	0.138628	0.020675	0.006533	pCi	g	ARS1-B10-01398	0.51664	1						
ARS1-B10-01398-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	ASP-A-009	TH-228	0.863187	0.081587	0.13244	0.014712	0.004648	pCi	g	ARS1-B10-01398	0.68675	1						
ARS1-B10-01398-06	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	ASP-A-009	TH-228	1.0974	0.117643	0.177288	0.041835	0.016595	pCi	g	ARS1-B10-01398	0.45999	1						
ARS1-B10-01398-07	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	ASP-A-009	TH-228	0.550203	0.07803	0.102521	0.007807	0	pCi	g	ARS1-B10-01398	0.4473	1						
ARS1-B10-01398-08	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	ASP-A-009	TH-228	0.759581	0.077607	0.120211	0.015115	0.004776	pCi	g	ARS1-B10-01398	0.68527	1						
ARS1-B10-01398-22	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	ASP-A-009	TH-228	1.166908	0.116563	0.182968	0.008214	0	pCi	g	ARS1-B10-01398	0.46044	1						
ARS1-B10-01398-23	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	ASP-A-009	TH-228	0.792652	0.082762	0.126599	0.030719	0.012409	pCi	g	ARS1-B10-01398	0.69061	1						
ARS1-B10-01398-16	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	ASP-A-009	TH-228	1.08057	0.090144	0.158688	0.014361	0.004538	pCi	g	ARS1-B10-01398	0.78988	1						
ARS1-B10-01398-17	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	ASP-A-009	TH-228	0.566697	0.069691	0.097713	0.016299	0.00515	pCi	g	ARS1-B10-01398	0.61686	1						
ARS1-B10-01398-18	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	ASP-A-009	TH-228	0.578733	0.06903	0.098273	0.015666	0.00495	pCi	g	ARS1-B10-01398	0.67206	1						
ARS1-B10-01398-19	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	ASP-A-009	TH-228	0.621822	0.07739	0.107876	0.018313	0.005786	pCi	g	ARS1-B10-01398	0.60726	1						
ARS1-B10-01398-20	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	ASP-A-009	TH-228	0.71996	0.095123	0.128918	0.029859	0.010574	pCi	g	ARS1-B10-01398	0.47964	1						
ARS1-B10-01398-04	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	ASP-A-009	TH-228	0.914778	0.108515	0.154917	0.009081	0	pCi	g	ARS1-B10-01398	0.42687	1						
ARS1-B10-01398-21	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	ASP-A-009	TH-228	0.898203	0.092523	0.142637	0.022799	0.008074	pCi	g	ARS1-B10-01398	0.54854	1						
ARS1-B10-01398-15	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	ASP-A-009	TH-228	0.880268	0.109116	0.152398	0.025719	0.008126	pCi	g	ARS1-B10-01398	0.3879	1						
ARS1-B10-01398-10	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	ASP-A-009	TH-230	0.907715	0.114381	0.158489	0.056052	0.02324	pCi	g	ARS1-B10-01398	0.4024	1						
ARS1-B10-01398-11	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	ASP-A-009	TH-230	0.863591	0.12485	0.162731	0.074488	0.031451	pCi	g	ARS1-B10-01398	0.33724	1						
ARS1-B10-01398-12	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	ASP-A-009	TH-230	0.989604	0.106405	0.160085	0.037946	0.015052	pCi	g	ARS1-B10-01398	0.51613	1						
ARS1-B10-01398-13	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	ASP-A-009	TH-230	0.870605	0.10234	0.146782	0.022893	0.007233	pCi	g	ARS1-B10-01398	0.42247	1						
ARS1-B10-01398-14	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	ASP-A-009	TH-230	0.828502	0.094473	0.137665	0.03807	0.015378	pCi	g	ARS1-B10-01398	0.51664	1						
ARS1-B10-01398-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	ASP-A-009	TH-230	1.051439	0.088596	0.154913	0.0207	0.007745	pCi	g	ARS1-B10-01398	0.68675	1						
ARS1-B10-01398-06	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	ASP-A-009	TH-230	1.562074	0.137296	0.233437	0.043293	0.017488	pCi	g	ARS1-B10-01398	0.45999	1						
ARS1-B10-01398-07	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	ASP-A-009	TH-230	0.68726	0.087244	0.120461	0.036341	0.014416	pCi	g	ARS1-B10-01398	0.4473	1						
ARS1-B10-01398-08	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	ASP-A-009	TH-230	0.766282	0.077224	0.120585	0.025899	0.010274	pCi	g	ARS1-B10-01398	0.68527	1						
ARS1-B10-01398-22	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	ASP-A-009	TH-230	1.17472	0.114978	0.182695	0.021462	0.006781	pCi	g	ARS1-B10-01398	0.46044	1						
ARS1-B10-01398-23	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	ASP-A-009	TH-230	0.768603	0.078851	0.121847	0.01542	0.004872	pCi	g	ARS1-B10-01398	0.69061	1						
ARS1-B10-01398-16	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	ASP-A-009	TH-230	1.900295	0.117369	0.257923	0.020201	0.007559	pCi	g	ARS1-B10-01398	0.78988	1						
ARS1-B10-01398-17	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	ASP-A-009	TH-230	0.63445	0.072996	0.105869	0.025581	0.009906	pCi	g	ARS1-B10-01398	0.61686	1						
ARS1-B10-01398-18	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	ASP-A-009	TH-230	0.724409	0.076732	0.116418	0.028868	0.011661	pCi	g	ARS1-B10-01398	0.67206	1						
ARS1-B10-01398-19	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	ASP-A-009	TH-230	0.648291	0.077471	0.110186	0.017613	0.005565	pCi	g	ARS1-B10-01398	0.60726	1						
ARS1-B10-01398-20	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	ASP-A-009	TH-230	0.729536	0.093471	0.128496	0.02276	0.007191	pCi	g	ARS1-B10-01398	0.47964	1						
ARS1-B10-01398-04	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	ASP-A-009	TH-230	1.00573	0.112312	0.165497	0.029946	0.010605	pCi	g	ARS1-B10-01398	0.42687	1						
ARS1-B10-01398-21	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	ASP-A-009	TH-230	0.946433	0.093554	0.147772	0.028359	0.010981	pCi	g	ARS1-B10-01398	0.54854	1						
ARS1-B10-01398-15	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	ASP-A-009	TH-230	1.431165	0.137493	0.22096	0.044057	0.017476	pCi	g	ARS1-B10-01398	0.3879	1						
ARS1-B10-01398-10	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	ASP-A-009	TH-232	0.687355	0.098919	0.129175	0.046225	0.018336	pCi	g	ARS1-B10-01398	0.4024	1						
ARS1-B10-01398-11	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	ASP-A-009	TH-232	0.900263	0.123756	0.164785	0.051266	0.019852	pCi	g	ARS1-B10-01398	0.33724	1						
ARS1-B10-01398-12	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	ASP-A-009	TH-232	0.961633	0.105739	0.157126	0.045829	0.019002	pCi	g	ARS1-B10-01398	0.51613	1						
ARS1-B10-01398-13	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	ASP-A-009	TH-232	0.828523	0.099753	0.141343	0.022847	0.007219	pCi	g	ARS1-B10-01398	0.42247	1						
ARS1-B10-01398-14	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	ASP-A-009	TH-232	0.824151	0.092343	0.135826	0.007299	0	pCi	g	ARS1-B10-01398	0.51664	1						
ARS1-B10-01398-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	ASP-A-009	TH-232	0.895868	0.081427	0.135476	0.014124	0.004463	pCi	g	ARS1-B10-01398	0.68675	1						
ARS1-B10-01398-06	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	ASP-A-009	TH-232	1.133224	0.115782	0.179343	0.02255	0.007125	pCi	g	ARS1-B10-01398	0.45999	1						
ARS1-B10-01398-07	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	ASP-A-009	TH-232	0.647165	0.083977	0.114761	0.029783	0.011144	pCi	g	ARS1-B10-01398	0.4473	1						
ARS1-B10-01398-08	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	ASP-A-009	TH-232	0.715474	0.075604	0.114863	0.034341	0.0145	pCi	g	ARS1-B10-01398	0.68527	1						
ARS1-B10-01398-22	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	ASP-A-009	TH-232	1.157824	0.114322	0.180697	0.027026	0.009571	pCi	g	ARS1-B10-01398	0.46044	1						
ARS1-B10-01398-23	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	ASP-A-009	TH-232	0.919642	0.086126	0.140612	0.015389	0.004862	pCi	g	ARS1-B10-01398	0.69061	1						
ARS1-B10-01398-16	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	ASP-A-009	TH-232	1.200051	0.093047	0.17232	0.013784	0.004355	pCi	g	ARS1-B10-01398	0.78988	1						
ARS1-B10-01398-17	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	ASP-A-009	TH-232	0.577937	0.068935	0.098138	0.015644	0.004943	pCi	g	ARS1-B10-01398	0.61686	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01398-18	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	ASP-A-009	TH-232	0.757678	0.077514	0.119976	0.018973	0.006719	pCi	g	ARS1-B10-01398	0.67206	1						
ARS1-B10-01398-19	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	ASP-A-009	TH-232	0.685193	0.079549	0.11483	0.017578	0.005554	pCi	g	ARS1-B10-01398	0.60726	1						
ARS1-B10-01398-20	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	ASP-A-009	TH-232	0.715736	0.092497	0.126644	0.022715	0.007177	pCi	g	ARS1-B10-01398	0.47964	1						
ARS1-B10-01398-04	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	ASP-A-009	TH-232	0.897556	0.10682	0.152244	0.038654	0.014968	pCi	g	ARS1-B10-01398	0.42687	1						
ARS1-B10-01398-21	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	ASP-A-009	TH-232	0.878586	0.090821	0.139728	0.035379	0.014498	pCi	g	ARS1-B10-01398	0.54854	1						
ARS1-B10-01398-15	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	ASP-A-009	TH-232	0.848263	0.113252	0.152763	0.082256	0.036585	pCi	g	ARS1-B10-01398	0.3879	1						
ARS1-B10-01399-04	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	ASP-A-009	TH-228	0.768961	0.111263	0.144972	0.052249	0.020726	pCi	g	ARS1-B10-01399	0.38186	1						
ARS1-B10-01399-05	TLS-SB-IA3-15 (4.0-5.0) 021710D	ARS1-10-00282-022	ASP-A-009	TH-228	0.853589	0.111531	0.151929	0.027686	0.008748	pCi	g	ARS1-B10-01399	0.36187	1						
ARS1-B10-01399-06	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	ASP-A-009	TH-228	0.809245	0.10303	0.14206	0.009253	0	pCi	g	ARS1-B10-01399	0.42667	1						
ARS1-B10-01399-08	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	ASP-A-009	TH-228	0.850014	0.101015	0.144077	0.022841	0.007217	pCi	g	ARS1-B10-01399	0.42515	1						
ARS1-B10-01399-10	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	ASP-A-009	TH-228	0.595563	0.070907	0.101039	0.016062	0.005075	pCi	g	ARS1-B10-01399	0.66952	1						
ARS1-B10-01399-11	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	ASP-A-009	TH-228	0.657699	0.090476	0.120435	0.00878	0	pCi	g	ARS1-B10-01399	0.42693	1						
ARS1-B10-01399-12	TLS-SB-IA3-16 (7.8-8.8) 021710D	ARS1-10-00282-029	ASP-A-009	TH-228	0.660035	0.07731	0.111087	0.017233	0.005445	pCi	g	ARS1-B10-01399	0.59938	1						
ARS1-B10-01399-07	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	ASP-A-009	TH-228	0.67333	0.080465	0.114443	0.006783	0	pCi	g	ARS1-B10-01399	0.5605	1						
ARS1-B10-01399-04	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	ASP-A-009	TH-230	0.740315	0.105523	0.138351	0.035635	0.01262	pCi	g	ARS1-B10-01399	0.38186	1						
ARS1-B10-01399-05	TLS-SB-IA3-15 (4.0-5.0) 021710D	ARS1-10-00282-022	ASP-A-009	TH-230	0.756627	0.104043	0.138518	0.038986	0.014587	pCi	g	ARS1-B10-01399	0.36187	1						
ARS1-B10-01399-06	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	ASP-A-009	TH-230	0.775819	0.099402	0.136648	0.024204	0.007648	pCi	g	ARS1-B10-01399	0.42667	1						
ARS1-B10-01399-08	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	ASP-A-009	TH-230	1.066305	0.11123	0.170237	0.027748	0.009827	pCi	g	ARS1-B10-01399	0.42515	1						
ARS1-B10-01399-10	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	ASP-A-009	TH-230	0.709947	0.076799	0.115154	0.027545	0.010926	pCi	g	ARS1-B10-01399	0.66952	1						
ARS1-B10-01399-11	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	ASP-A-009	TH-230	0.742427	0.096673	0.131898	0.044006	0.017776	pCi	g	ARS1-B10-01399	0.42693	1						
ARS1-B10-01399-12	TLS-SB-IA3-16 (7.8-8.8) 021710D	ARS1-10-00282-029	ASP-A-009	TH-230	0.718876	0.078889	0.117355	0.006107	0	pCi	g	ARS1-B10-01399	0.59938	1						
ARS1-B10-01399-07	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	ASP-A-009	TH-230	0.809751	0.087354	0.131182	0.025953	0.009711	pCi	g	ARS1-B10-01399	0.5605	1						
ARS1-B10-01399-04	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	ASP-A-009	TH-232	0.796257	0.108732	0.145203	0.028186	0.008906	pCi	g	ARS1-B10-01399	0.38186	1						
ARS1-B10-01399-05	TLS-SB-IA3-15 (4.0-5.0) 021710D	ARS1-10-00282-022	ASP-A-009	TH-232	0.646724	0.095796	0.123638	0.033565	0.011887	pCi	g	ARS1-B10-01399	0.36187	1						
ARS1-B10-01399-06	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	ASP-A-009	TH-232	0.688966	0.093185	0.124968	0.008891	0	pCi	g	ARS1-B10-01399	0.42667	1						
ARS1-B10-01399-08	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	ASP-A-009	TH-232	0.882339	0.101532	0.147244	0.0321	0.012011	pCi	g	ARS1-B10-01399	0.42515	1						
ARS1-B10-01399-10	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	ASP-A-009	TH-232	0.607907	0.070687	0.101955	0.022574	0.008447	pCi	g	ARS1-B10-01399	0.66952	1						
ARS1-B10-01399-11	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	ASP-A-009	TH-232	0.610187	0.085426	0.112855	0.008437	0	pCi	g	ARS1-B10-01399	0.42693	1						
ARS1-B10-01399-12	TLS-SB-IA3-16 (7.8-8.8) 021710D	ARS1-10-00282-029	ASP-A-009	TH-232	0.733181	0.080077	0.119434	0.020893	0.007399	pCi	g	ARS1-B10-01399	0.59938	1						
ARS1-B10-01399-07	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	ASP-A-009	TH-232	0.772054	0.084723	0.126035	0.017709	0.005595	pCi	g	ARS1-B10-01399	0.5605	1						
ARS1-B10-01553-12	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	ASP-A-009	TH-228	1.064167	0.100677	0.163334	0.039383	0.016459	pCi	g	ARS1-B10-01553	0.48927	1						
ARS1-B10-01553-13	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	ASP-A-009	TH-228	0.619952	0.058529	0.095078	0.025721	0.011009	pCi	g	ARS1-B10-01553	0.76063	1						
ARS1-B10-01553-14	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	ASP-A-009	TH-228	0.538884	0.07767	0.101363	0.05458	0.023871	pCi	g	ARS1-B10-01553	0.44788	1						
ARS1-B10-01553-16	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	ASP-A-009	TH-228	0.873623	0.09247	0.140354	0.023399	0.008287	pCi	g	ARS1-B10-01553	0.46479	1						
ARS1-B10-01553-11	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	ASP-A-009	TH-228	0.979174	0.092245	0.150047	0.020824	0.007375	pCi	g	ARS1-B10-01553	0.55508	1						
ARS1-B10-01553-17	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	ASP-A-009	TH-228	1.023877	0.090681	0.153415	0.03812	0.016358	pCi	g	ARS1-B10-01553	0.57172	1						
ARS1-B10-01553-18	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	ASP-A-009	TH-228	0.927783	0.085903	0.141255	0.019065	0.006752	pCi	g	ARS1-B10-01553	0.6038	1						
ARS1-B10-01553-19	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	ASP-A-009	TH-228	0.822633	0.098379	0.13987	0.047627	0.019905	pCi	g	ARS1-B10-01553	0.45665	1						
ARS1-B10-01553-21	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	ASP-A-009	TH-228	0.94226	0.105872	0.155493	0.045557	0.01877	pCi	g	ARS1-B10-01553	0.42298	1						
ARS1-B10-01553-22	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	ASP-A-009	TH-228	0.796163	0.100596	0.139207	0.055977	0.023863	pCi	g	ARS1-B10-01553	0.36203	1						
ARS1-B10-01553-23	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	ASP-A-009	TH-228	0.784163	0.073652	0.120028	0.030052	0.012689	pCi	g	ARS1-B10-01553	0.70448	1						
ARS1-B10-01553-05	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	ASP-A-009	TH-228	0.797764	0.073568	0.12128	0.032631	0.014047	pCi	g	ARS1-B10-01553	0.69555	1						
ARS1-B10-01553-06	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	ASP-A-009	TH-228	0.81632	0.081081	0.127703	0.045874	0.02035	pCi	g	ARS1-B10-01553	0.71656	1						
ARS1-B10-01553-07	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	ASP-A-009	TH-228	0.585337	0.057763	0.09133	0.029779	0.013024	pCi	g	ARS1-B10-01553	0.80566	1						
ARS1-B10-01553-08	TLS-SB-IA3-22(4.6-5.6)021710D	ARS1-10-00311-005	ASP-A-009	TH-228	0.693011	0.061829	0.104107	0.024281	0.010271	pCi	g	ARS1-B10-01553	0.86926	1						
ARS1-B10-01553-09	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	ASP-A-009	TH-228	0.496273	0.050156	0.078187	0.01213	0.004296	pCi	g	ARS1-B10-01553	0.87201	1						
ARS1-B10-01553-10	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	ASP-A-009	TH-228	1.471273	0.117525	0.213147	0.044931	0.019281	pCi	g	ARS1-B10-01553	0.58864	1						
ARS1-B10-01553-15	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	ASP-A-009	TH-228	0.811404	0.090602	0.133513	0.043617	0.01845	pCi	g	ARS1-B10-01553	0.46246	1						
ARS1-B10-01553-20	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	ASP-A-009	TH-228	0.767448	0.085724	0.126301	0.04375	0.018726	pCi	g	ARS1-B10-01553	0.5388	1						
ARS1-B10-01553-04	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	ASP-A-009	TH-228	0.567846	0.060266	0.091335	0.025287	0.010485	pCi	g	ARS1-B10-01553	0.74034	1						
ARS1-B10-01553-12	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	ASP-A-009	TH-230	1.108059	0.098572	0.166286	0.006186	0	pCi	g	ARS1-B10-01553	0.48927	1						
ARS1-B10-01553-13	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	ASP-A-009	TH-230	0.734867	0.061075	0.107789	0.014079	0.005268	pCi	g	ARS1-B10-01553	0.76063	1						
ARS1-B10-01553-14	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	ASP-A-009	TH-230	0.641704	0.078547	0.110384	0.031632	0.012547	pCi	g	ARS1-B10-01553	0.44788	1						
ARS1-B10-01553-11	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	ASP-A-009	TH-230	1.055922	0.094035	0.158522	0.025774	0.00998	pCi	g	ARS1-B10-01553	0.55508	1						
ARS1-B10-01553-16	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	ASP-A-009	TH-230	0.894223	0.092305	0.142129	0.033026	0.01325	pCi	g	ARS1-B10-01553	0.46479	1						
ARS1-B10-01553-17	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	ASP-A-009	TH-230	0.983515	0.085271	0.14629	0.019137	0.006986	pCi	g	ARS1-B10-01553	0.57172	1						
ARS1-B10-01553-18	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	ASP-A-009	TH-230	0.751866	0.076057	0.118499	0.023572	0.009128	pCi	g	ARS1-B10-01553	0.6038	1						
ARS1-B10-01553-19	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	ASP-A-009	TH-230	0.767727	0.090181	0.129392	0.007473	0	pCi	g	ARS1-B10-01553	0.45665	1						
ARS1-B10-01553-21	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	ASP-A-009	TH-230	0.833466	0.095158	0.138572	0.007664	0	pCi	g	ARS1-B10-01553	0.42298	1						
ARS1-B10-01553-22	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	ASP-A-009	TH-230	1.817444	0.143327	0.262282	0.032988	0.012551	pCi	g	ARS1-B10-01553	0.36203	1						
ARS1-B10-01553-23	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	ASP-A-009	TH-230	0.962057	0.078464	0.140273	0.017757	0.006644	pCi	g	ARS1-B10-01553	0.70448	1						
ARS1-B10-01553-05	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	ASP-A-009	TH-230	0.771445	0.069629	0.116367	0.021017	0.008337	pCi	g	ARS1-B10-01553	0.69555	1						
ARS1-B10-01553-06	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	ASP-A-009	TH-230	0.795621	0.075746	0.12241	0.025771	0.01041	pCi	g	ARS1-B10-01553	0.71656	1						
ARS1-B10-01553-07	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	ASP-A-009	TH-230	0.72667	0.061194	0.107042	0.017278	0.006854	pCi	g	ARS1-B10-01553	0.80566	1						
ARS1-B10-01553-08	TLS-SB-IA3-22(4.6-5.6)021710D	ARS1-10-00311-005	ASP-A-009	TH-230	0.772329	0.06324	0.11275	0.018761	0.007592	pCi	g	ARS1-B10-01553	0.86926	1						
ARS1-B10-01553-09	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	ASP-A-009	TH-230	0.587003	0.053713	0.088985	0.017141	0.006877	pCi	g	ARS1-B10-01553	0.87201	1						
ARS1-B10-01553-10	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	ASP-A-009	TH-230	0.900897	0.088773	0.140485	0.022582	0.008243	pCi	g	ARS1-B10-01553	0.58864	1						
ARS1-B10-01553-15	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	ASP-A-009	TH-230	0.97124	0.095408	0.151268	0.033662	0.013621	pCi	g	ARS1-B10-01553	0.46246	1						
ARS1-B10-01553-20	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	ASP-A-009	TH-230	0.839821	0.085325	0.1326	0.023921	0.008951	pCi	g	ARS1-B10-01553	0.5388	1						
ARS1-B10-01553-04	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	ASP-A-009	TH-230	0.741308	0.066304	0.11146	0.016421	0.006144	pCi	g	ARS1-B10-01553	0.74034	1						
ARS1-B10-01553-11	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	ASP-A-009	TH-232	0.888747	0.086419	0.137863	0.026987	0.010593	pCi	g	ARS1-B10-01553	0.55508	1						
ARS1-B10-01553-12	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	ASP-A-009	TH-232	0.927272	0.090083	0.143787	0.006174	0	pCi	g	ARS1-B10-01553	0.48927	1						
ARS1-B10-01553-13	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	ASP-A-009	TH-232	0.622271	0.057331	0.094568	0.025285	0.010874	pCi	g	ARS1-B10-01553	0.76063	1						
ARS1-B10-01553-14	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	ASP-A-009	TH-232	0.483254	0.067231	0.089058	0.018511	0.005994	pCi	g	ARS1-B10-01553	0.44788	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01553-16	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	ASP-A-009	TH-232	0.727075	0.083286	0.121072	0.031692	0.01259	pCi	g	ARS1-B10-01553	0.46479	1						
ARS1-B10-01553-17	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	ASP-A-009	TH-232	1.060442	0.0886	0.155809	0.02197	0.008407	pCi	g	ARS1-B10-01553	0.57172	1						
ARS1-B10-01553-18	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	ASP-A-009	TH-232	0.789157	0.077902	0.123149	0.024681	0.009688	pCi	g	ARS1-B10-01553	0.6038	1						
ARS1-B10-01553-19	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	ASP-A-009	TH-232	0.656519	0.083311	0.115051	0.007458	0	pCi	g	ARS1-B10-01553	0.45665	1						
ARS1-B10-01553-21	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	ASP-A-009	TH-232	0.666429	0.086078	0.117885	0.030394	0.011373	pCi	g	ARS1-B10-01553	0.42298	1						
ARS1-B10-01553-22	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	ASP-A-009	TH-232	0.791842	0.095549	0.135235	0.036675	0.014402	pCi	g	ARS1-B10-01553	0.36203	1						
ARS1-B10-01553-23	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	ASP-A-009	TH-232	0.642309	0.063885	0.100537	0.012116	0.003828	pCi	g	ARS1-B10-01553	0.70448	1						
ARS1-B10-01553-05	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	ASP-A-009	TH-232	0.730345	0.067335	0.111021	0.015789	0.005727	pCi	g	ARS1-B10-01553	0.69555	1						
ARS1-B10-01553-06	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	ASP-A-009	TH-232	0.813189	0.076815	0.12474	0.028978	0.012019	pCi	g	ARS1-B10-01553	0.71656	1						
ARS1-B10-01553-07	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	ASP-A-009	TH-232	0.552943	0.052993	0.08529	0.010111	0.003274	pCi	g	ARS1-B10-01553	0.80566	1						
ARS1-B10-01553-08	TLS-SB-IA3-22(4.6-5.6)021710D	ARS1-10-00311-005	ASP-A-009	TH-232	0.480314	0.049884	0.07654	0.016243	0.006336	pCi	g	ARS1-B10-01553	0.86926	1						
ARS1-B10-01553-09	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	ASP-A-009	TH-232	0.3875	0.043785	0.064113	0.016449	0.006535	pCi	g	ARS1-B10-01553	0.87201	1						
ARS1-B10-01553-10	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	ASP-A-009	TH-232	1.839494	0.126499	0.255791	0.025924	0.009921	pCi	g	ARS1-B10-01553	0.58864	1						
ARS1-B10-01553-15	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	ASP-A-009	TH-232	0.606586	0.075452	0.105203	0.029144	0.011368	pCi	g	ARS1-B10-01553	0.46246	1						
ARS1-B10-01553-20	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	ASP-A-009	TH-232	0.697104	0.080134	0.116275	0.042962	0.018477	pCi	g	ARS1-B10-01553	0.5388	1						
ARS1-B10-01553-04	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	ASP-A-009	TH-232	0.441411	0.051149	0.073908	0.014138	0.005007	pCi	g	ARS1-B10-01553	0.74034	1						
ARS1-B10-01554-06	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	ASP-A-009	TH-228	2.594836	0.285935	0.424396	0.086851	0.032516	pCi	g	ARS1-B10-01554	0.49186	1		J	1.20	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-01554-07	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	ASP-A-009	TH-228	0.959478	0.164582	0.201332	0.080234	0.030649	pCi	g	ARS1-B10-01554	0.51838	1		R	2.64	n	Y	MB>Primary Finding
ARS1-B10-01554-08	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	ASP-A-009	TH-228	0.813818	0.122086	0.156778	0.051481	0.019515	pCi	g	ARS1-B10-01554	0.79226	1		R	3.21	n	Y	MB>Primary Finding
ARS1-B10-01554-09	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	ASP-A-009	TH-228	0.667212	0.128182	0.151438	0.056372	0.019794	pCi	g	ARS1-B10-01554	0.59109	1		R	3.64	n	Y	MB>Primary Finding
ARS1-B10-01554-10	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	ASP-A-009	TH-228	0.844098	0.121066	0.158318	0.049624	0.018899	pCi	g	ARS1-B10-01554	0.78371	1		R	3.12	n	Y	MB>Primary Finding
ARS1-B10-01554-04	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	ASP-A-009	TH-228	0.771555	0.116477	0.149206	0.058563	0.023436	pCi	g	ARS1-B10-01554	0.73917	1		R	3.36	n	Y	MB>Primary Finding
ARS1-B10-01554-17	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	ASP-A-009	TH-228	0.865227	0.123247	0.161632	0.046542	0.017251	pCi	g	ARS1-B10-01554	0.8029	1		R	3.05	n	Y	MB>Primary Finding
ARS1-B10-01554-18	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	ASP-A-009	TH-228	0.773818	0.127445	0.158079	0.046542	0.016034	pCi	g	ARS1-B10-01554	0.62092	1		R	3.31	n	Y	MB>Primary Finding
ARS1-B10-01554-19	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	ASP-A-009	TH-228	0.8224	0.162152	0.190192	0.094026	0.036549	pCi	g	ARS1-B10-01554	0.50899	1		R	3.05	n	Y	MB>Primary Finding
ARS1-B10-01554-20	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	ASP-A-009	TH-228	0.632486	0.093054	0.120427	0.033806	0.012192	pCi	g	ARS1-B10-01554	0.88065	1		R	3.87	n	Y	MB>Primary Finding
ARS1-B10-01554-23	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	ASP-A-009	TH-228	0.417675	0.083036	0.097176	0.043699	0.016347	pCi	g	ARS1-B10-01554	0.85561	1		R	4.60	n	Y	MB>Primary Finding
ARS1-B10-01554-13	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	ASP-A-009	TH-228	2.155429	0.254483	0.364177	0.065846	0.022443	pCi	g	ARS1-B10-01554	0.49826	1		J	0.41	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-01554-14	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	ASP-A-009	TH-228	0.797923	0.136818	0.16739	0.065077	0.024645	pCi	g	ARS1-B10-01554	0.67968	1		R	3.21	n	Y	MB>Primary Finding
ARS1-B10-01554-15	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	ASP-A-009	TH-228	0.738773	0.112376	0.14353	0.048073	0.018233	pCi	g	ARS1-B10-01554	0.72545	1		R	3.47	n	Y	MB>Primary Finding
ARS1-B10-01554-12	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	ASP-A-009	TH-228	2.775211	0.295054	0.44672	0.085799	0.03202	pCi	g	ARS1-B10-01554	0.42814	1		J	1.49	Y	n	Primary Finding > MB, Abs.Norl.Diff.>2.0
ARS1-B10-01554-05	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	ASP-A-009	TH-228	0.695894	0.117229	0.144279	0.044677	0.015547	pCi	g	ARS1-B10-01554	0.75976	1		R	3.59	n	Y	MB>Primary Finding
ARS1-B10-01554-16	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	ASP-A-009	TH-228	0.761412	0.125102	0.155303	0.056058	0.021071	pCi	g	ARS1-B10-01554	0.72502	1		R	3.36	n	Y	MB>Primary Finding
ARS1-B10-01554-22	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	ASP-A-009	TH-228	0.798046	0.111308	0.147284	0.034962	0.012097	pCi	g	ARS1-B10-01554	0.88928	1		R	3.29	n	Y	MB>Primary Finding
ARS1-B10-01554-11	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	ASP-A-009	TH-228	0.679459	0.131305	0.15487	0.07055	0.026856	pCi	g	ARS1-B10-01554	0.55559	1		R	3.59	n	Y	MB>Primary Finding
ARS1-B10-01554-06	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	ASP-A-009	TH-230	3.738198	0.332798	0.56114	0.052309	0.015738	pCi	g	ARS1-B10-01554	0.49186	1						
ARS1-B10-01554-07	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	ASP-A-009	TH-230	1.092238	0.168445	0.214009	0.050801	0.01636	pCi	g	ARS1-B10-01554	0.51838	1						
ARS1-B10-01554-08	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	ASP-A-009	TH-230	0.825195	0.118626	0.15498	0.033406	0.010758	pCi	g	ARS1-B10-01554	0.79226	1						
ARS1-B10-01554-09	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	ASP-A-009	TH-230	0.87722	0.141593	0.176887	0.03437	0.009172	pCi	g	ARS1-B10-01554	0.59109	1						
ARS1-B10-01554-10	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	ASP-A-009	TH-230	0.902565	0.120887	0.162828	0.032937	0.010823	pCi	g	ARS1-B10-01554	0.78371	1						
ARS1-B10-01554-04	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	ASP-A-009	TH-230	0.758728	0.110199	0.143362	0.03142	0.010133	pCi	g	ARS1-B10-01554	0.73917	1						
ARS1-B10-01554-17	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	ASP-A-009	TH-230	1.084806	0.133427	0.187063	0.030107	0.009305	pCi	g	ARS1-B10-01554	0.8029	1						
ARS1-B10-01554-18	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	ASP-A-009	TH-230	0.803352	0.125988	0.15906	0.033197	0.009688	pCi	g	ARS1-B10-01554	0.62092	1						
ARS1-B10-01554-19	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	ASP-A-009	TH-230	0.766892	0.148334	0.174911	0.047997	0.014007	pCi	g	ARS1-B10-01554	0.50899	1						
ARS1-B10-01554-20	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	ASP-A-009	TH-230	0.611653	0.089174	0.115831	0.029595	0.010299	pCi	g	ARS1-B10-01554	0.88065	1						
ARS1-B10-01554-23	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	ASP-A-009	TH-230	0.43421	0.08041	0.09602	0.012901	0.0012	pCi	g	ARS1-B10-01554	0.85561	1						
ARS1-B10-01554-13	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	ASP-A-009	TH-230	2.317297	0.257439	0.380413	0.058341	0.019162	pCi	g	ARS1-B10-01554	0.49826	1						
ARS1-B10-01554-14	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	ASP-A-009	TH-230	0.744268	0.127783	0.156268	0.049587	0.017256	pCi	g	ARS1-B10-01554	0.67968	1						
ARS1-B10-01554-15	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	ASP-A-009	TH-230	0.627884	0.099617	0.125229	0.023773	0.006344	pCi	g	ARS1-B10-01554	0.72545	1						
ARS1-B10-01554-12	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	ASP-A-009	TH-230	3.368336	0.315637	0.515127	0.054864	0.017043	pCi	g	ARS1-B10-01554	0.42814	1						
ARS1-B10-01554-05	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	ASP-A-009	TH-230	0.904551	0.128961	0.169064	0.01297	0	pCi	g	ARS1-B10-01554	0.75976	1						
ARS1-B10-01554-16	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	ASP-A-009	TH-230	0.792962	0.122217	0.155312	0.013288	0	pCi	g	ARS1-B10-01554	0.72502	1						
ARS1-B10-01554-22	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	ASP-A-009	TH-230	0.804669	0.108623	0.145798	0.025074	0.007399	pCi	g	ARS1-B10-01554	0.88928	1						
ARS1-B10-01554-11	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	ASP-A-009	TH-230	0.965728	0.149168	0.189405	0.042104	0.013013	pCi	g	ARS1-B10-01554	0.55559	1						
ARS1-B10-01554-06	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	ASP-A-009	TH-232	2.415728	0.26759	0.396041	0.054449	0.016828	pCi	g	ARS1-B10-01554	0.49186	1						
ARS1-B10-01554-07	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	ASP-A-009	TH-232	0.911305	0.15317	0.188659	0.038697	0.010326	pCi	g	ARS1-B10-01554	0.51838	1						
ARS1-B10-01554-08	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	ASP-A-009	TH-232	0.719314	0.109996	0.140204	0.011866	0	pCi	g	ARS1-B10-01554	0.79226	1						
ARS1-B10-01554-09	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	ASP-A-009	TH-232	0.672406	0.124193	0.14842	0.038416	0.011211	pCi	g	ARS1-B10-01554	0.59109	1						
ARS1-B10-01554-10	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	ASP-A-009	TH-232	0.863347	0.118436	0.157845	0.037019	0.012875	pCi	g	ARS1-B10-01554	0.78371	1						
ARS1-B10-01554-04	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	ASP-A-009	TH-232	0.509836	0.090297	0.109318	0.028531	0.008699	pCi	g	ARS1-B10-01554	0.73917	1						
ARS1-B10-01554-17	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	ASP-A-009	TH-232	0.92925	0.123189	0.1667	0.024607	0.006566	pCi	g	ARS1-B10-01554	0.8029	1						
ARS1-B10-01554-18	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	ASP-A-009	TH-232	0.642006	0.112167	0.136389	0.022659	0.004433	pCi	g	ARS1-B10-01554	0.62092	1						
ARS1-B10-01554-19	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	ASP-A-009	TH-232	0.816193	0.153418	0.182395	0.056036	0.018046	pCi	g	ARS1-B10-01554	0.50899	1						
ARS1-B10-01554-20	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	ASP-A-009	TH-232	0.610546	0.088157	0.114964	0.00898	0	pCi	g	ARS1-B10-01554	0.88065	1						
ARS1-B10-01554-23	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	ASP-A-009	TH-232	0.433372	0.08024	0.095822	0.01048	0	pCi	g	ARS1-B10-01554	0.85561	1						
ARS1-B10-01554-13	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	ASP-A-009	TH-232	2.336829	0.258338	0.38276	0.05982	0.019922	pCi	g	ARS1-B10-01554	0.49826	1						
ARS1-B10-01554-14	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	ASP-A-009	TH-232	0.649856	0.1188	0.142416	0.041752	0.013353	pCi	g	ARS1-B10-01554	0.67968	1						
ARS1-B10-01554-15	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	ASP-A-009	TH-232	0.700759	0.105436	0.13524	0.030006	0.009471	pCi	g	ARS1-B10-01554	0.72545	1						
ARS1-B10-01554-12	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	ASP-A-009	TH-232	2.111577	0.249343	0.356795	0.037521	0.008392	pCi	g	ARS1-B10-01554	0.42814	1						
ARS1-B10-01554-05	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	ASP-A-009	TH-232	0.668436	0.110924	0.137225	0.02342	0.005238	pCi	g	ARS1-B10-01554	0.75976	1						
ARS1-B10-01554-16	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	ASP-A-009	TH-232	0.710896	0.116103	0.144437	0.031316	0.009027	pCi	g	ARS1-B10-01554	0.72502	1						
ARS1-B10-01554-22	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	ASP-A-009	TH-232	0.783645	0.106962	0.142868	0.021993	0.005869	pCi	g	ARS1-B10-01554	0.88928	1						
ARS1-B10-01554-11	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	ASP-A-009	TH-232	0.757303	0.131897	0.160543	0.037988	0.010971	pCi	g	ARS1-B10-01554	0.55559	1						
ARS1-B10-01573-08	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	ASP-A-009	TH-228	0.725779	0.10977	0.140513	0.04727	0.018003	pCi	g	ARS1-B10-01573	0.94728	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01573-09	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	ASP-A-009	TH-228	1.743428	0.221155	0.305465	0.080654	0.030703	pCi	g	ARS1-B10-01573	0.54682	1						
ARS1-B10-01573-10	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	ASP-A-009	TH-228	0.779337	0.131336	0.16162	0.059101	0.022056	pCi	g	ARS1-B10-01573	0.64434	1						
ARS1-B10-01573-11	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	ASP-A-009	TH-228	0.67702	0.104545	0.132759	0.03511	0.011966	pCi	g	ARS1-B10-01573	0.82316	1						
ARS1-B10-01573-06	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	ASP-A-009	TH-228	0.691983	0.110733	0.138768	0.049571	0.018791	pCi	g	ARS1-B10-01573	0.82467	1						
ARS1-B10-01573-04	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	ASP-A-009	TH-228	2.586549	0.283292	0.421877	0.085545	0.032027	pCi	g	ARS1-B10-01573	0.49021	1						
ARS1-B10-01573-05	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	ASP-A-009	TH-228	0.908877	0.168624	0.201248	0.088215	0.033698	pCi	g	ARS1-B10-01573	0.45946	1						
ARS1-B10-01573-07	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	ASP-A-009	TH-228	0.776209	0.124747	0.156086	0.046354	0.016276	pCi	g	ARS1-B10-01573	0.70951	1						
ARS1-B10-01573-08	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	ASP-A-009	TH-230	0.758497	0.108207	0.141819	0.031355	0.010303	pCi	g	ARS1-B10-01573	0.94728	1						
ARS1-B10-01573-09	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	ASP-A-009	TH-230	2.952956	0.277856	0.452304	0.048101	0.014866	pCi	g	ARS1-B10-01573	0.54682	1						
ARS1-B10-01573-10	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	ASP-A-009	TH-230	1.03194	0.145322	0.191504	0.037766	0.011731	pCi	g	ARS1-B10-01573	0.64434	1						
ARS1-B10-01573-11	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	ASP-A-009	TH-230	0.853477	0.114245	0.153922	0.031086	0.01021	pCi	g	ARS1-B10-01573	0.82316	1						
ARS1-B10-01573-06	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	ASP-A-009	TH-230	0.789309	0.113814	0.148506	0.032147	0.010353	pCi	g	ARS1-B10-01573	0.82467	1						
ARS1-B10-01573-04	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	ASP-A-009	TH-230	2.23821	0.255752	0.372271	0.051491	0.015491	pCi	g	ARS1-B10-01573	0.49021	1						
ARS1-B10-01573-05	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	ASP-A-009	TH-230	0.99943	0.169129	0.207835	0.05582	0.017977	pCi	g	ARS1-B10-01573	0.45946	1						
ARS1-B10-01573-07	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	ASP-A-009	TH-230	0.74229	0.118062	0.148281	0.028244	0.007537	pCi	g	ARS1-B10-01573	0.70951	1						
ARS1-B10-01573-08	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	ASP-A-009	TH-232	0.750131	0.1078	0.140856	0.03524	0.012256	pCi	g	ARS1-B10-01573	0.94728	1						
ARS1-B10-01573-09	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	ASP-A-009	TH-232	1.919886	0.223861	0.322421	0.043399	0.012534	pCi	g	ARS1-B10-01573	0.54682	1						
ARS1-B10-01573-10	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	ASP-A-009	TH-232	0.518217	0.102632	0.120234	0.025827	0.005776	pCi	g	ARS1-B10-01573	0.64434	1						
ARS1-B10-01573-11	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	ASP-A-009	TH-232	0.597655	0.095802	0.119981	0.031874	0.010615	pCi	g	ARS1-B10-01573	0.82316	1						
ARS1-B10-01573-06	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	ASP-A-009	TH-232	0.556271	0.094889	0.116292	0.011418	0	pCi	g	ARS1-B10-01573	0.82467	1						
ARS1-B10-01573-04	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	ASP-A-009	TH-232	3.463855	0.317629	0.5255	0.053597	0.016565	pCi	g	ARS1-B10-01573	0.49021	1						
ARS1-B10-01573-05	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	ASP-A-009	TH-232	0.905336	0.160087	0.193908	0.04252	0.011347	pCi	g	ARS1-B10-01573	0.45946	1						
ARS1-B10-01573-07	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	ASP-A-009	TH-232	0.722572	0.116548	0.145637	0.031569	0.009213	pCi	g	ARS1-B10-01573	0.70951	1						
ARS1-B10-01634-05	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	ASP-A-009	TH-228	0.656184	0.085454	0.116584	0.051131	0.02201	pCi	g	ARS1-B10-01634	0.45022	1						
ARS1-B10-01634-06	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	ASP-A-009	TH-228	0.556102	0.063403	0.092397	0.040154	0.017813	pCi	g	ARS1-B10-01634	0.80259	1						
ARS1-B10-01634-04	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	ASP-A-009	TH-228	0.750644	0.080314	0.121165	0.035474	0.014853	pCi	g	ARS1-B10-01634	0.53719	1						
ARS1-B10-01634-05	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	ASP-A-009	TH-230	0.984004	0.098709	0.154554	0.032959	0.013074	pCi	g	ARS1-B10-01634	0.45022	1						
ARS1-B10-01634-06	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	ASP-A-009	TH-230	0.682248	0.06567	0.105412	0.022577	0.00912	pCi	g	ARS1-B10-01634	0.80259	1						
ARS1-B10-01634-04	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	ASP-A-009	TH-230	0.694041	0.073763	0.111701	0.00553	0	pCi	g	ARS1-B10-01634	0.53719	1						
ARS1-B10-01634-05	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	ASP-A-009	TH-232	0.749958	0.08568	0.124726	0.024762	0.008982	pCi	g	ARS1-B10-01634	0.45022	1						
ARS1-B10-01634-06	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	ASP-A-009	TH-232	0.626531	0.063259	0.098669	0.025386	0.010529	pCi	g	ARS1-B10-01634	0.80259	1						
ARS1-B10-01634-04	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	ASP-A-009	TH-232	0.634251	0.070788	0.104341	0.017237	0.005859	pCi	g	ARS1-B10-01634	0.53719	1						
ARS1-B10-01677-04	TLS-SB-IA5-18 (18.0-19.0) 02191C	ARS1-10-00429-004	ASP-A-009	TH-228	1.731387	0.275962	0.346328	0.115825	0.042931	pCi	g	ARS1-B10-01677	0.3317	1						
ARS1-B10-01677-05	TLS-SB-IA5-18 (19.0-20.0) 02191C	ARS1-10-00429-005	ASP-A-009	TH-228	1.908831	0.332715	0.404874	0.128255	0.044184	pCi	g	ARS1-B10-01677	0.26719	1						
ARS1-B10-01677-08	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	ASP-A-009	TH-228	0.619108	0.104456	0.128491	0.044256	0.016122	pCi	g	ARS1-B10-01677	0.79688	1						
ARS1-B10-01677-09	TLS-SB-IA5-20 (31.0-32.0) 02191C	ARS1-10-00429-009	ASP-A-009	TH-228	0.742151	0.108954	0.141126	0.035958	0.012442	pCi	g	ARS1-B10-01677	0.90761	1						
ARS1-B10-01677-10	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	ASP-A-009	TH-228	0.767023	0.120604	0.152115	0.051218	0.01916	pCi	g	ARS1-B10-01677	0.71749	1						
ARS1-B10-01677-07	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	ASP-A-009	TH-228	1.189823	0.226422	0.268227	0.104745	0.037775	pCi	g	ARS1-B10-01677	0.32893	1						
ARS1-B10-01677-06	TLS-SS-IA5-20 (1.4-1.9) 02191C	ARS1-10-00429-006	ASP-A-009	TH-228	0.629306	0.148211	0.166587	0.099861	0.038818	pCi	g	ARS1-B10-01677	0.43381	1						
ARS1-B10-01677-04	TLS-SB-IA5-18 (18.0-19.0) 02191C	ARS1-10-00429-004	ASP-A-009	TH-230	2.803823	0.3384	0.478903	0.074947	0.023163	pCi	g	ARS1-B10-01677	0.3317	1						
ARS1-B10-01677-05	TLS-SB-IA5-18 (19.0-20.0) 02191C	ARS1-10-00429-005	ASP-A-009	TH-230	2.150978	0.342319	0.429844	0.091507	0.026704	pCi	g	ARS1-B10-01677	0.26719	1						
ARS1-B10-01677-08	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	ASP-A-009	TH-230	0.693885	0.106521	0.135572	0.024606	0.006566	pCi	g	ARS1-B10-01677	0.79688	1						
ARS1-B10-01677-09	TLS-SB-IA5-20 (31.0-32.0) 02191C	ARS1-10-00429-009	ASP-A-009	TH-230	0.830373	0.111855	0.150278	0.025766	0.007604	pCi	g	ARS1-B10-01677	0.90761	1						
ARS1-B10-01677-10	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	ASP-A-009	TH-230	0.768099	0.115728	0.148361	0.015108	0.001405	pCi	g	ARS1-B10-01677	0.71749	1						
ARS1-B10-01677-07	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	ASP-A-009	TH-230	1.381156	0.236733	0.289667	0.09172	0.031917	pCi	g	ARS1-B10-01677	0.32893	1						
ARS1-B10-01677-06	TLS-SS-IA5-20 (1.4-1.9) 02191C	ARS1-10-00429-006	ASP-A-009	TH-230	0.524858	0.126923	0.141892	0.050989	0.01488	pCi	g	ARS1-B10-01677	0.43381	1						
ARS1-B10-01677-04	TLS-SB-IA5-18 (18.0-19.0) 02191C	ARS1-10-00429-004	ASP-A-009	TH-232	2.467742	0.316696	0.43503	0.061255	0.016346	pCi	g	ARS1-B10-01677	0.3317	1						
ARS1-B10-01677-05	TLS-SB-IA5-18 (19.0-20.0) 02191C	ARS1-10-00429-005	ASP-A-009	TH-232	1.894466	0.31988	0.393381	0.062461	0.012219	pCi	g	ARS1-B10-01677	0.26719	1						
ARS1-B10-01677-08	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	ASP-A-009	TH-232	0.512522	0.091298	0.110328	0.018192	0.003371	pCi	g	ARS1-B10-01677	0.79688	1						
ARS1-B10-01677-09	TLS-SB-IA5-20 (31.0-32.0) 02191C	ARS1-10-00429-009	ASP-A-009	TH-232	0.640177	0.098056	0.124906	0.0226	0.006031	pCi	g	ARS1-B10-01677	0.90761	1						
ARS1-B10-01677-10	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	ASP-A-009	TH-232	0.794216	0.117549	0.151762	0.012273	0	pCi	g	ARS1-B10-01677	0.71749	1						
ARS1-B10-01677-07	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	ASP-A-009	TH-232	1.184045	0.216127	0.25921	0.02783	0	pCi	g	ARS1-B10-01677	0.32893	1						
ARS1-B10-01677-06	TLS-SS-IA5-20 (1.4-1.9) 02191C	ARS1-10-00429-006	ASP-A-009	TH-232	0.54297	0.129727	0.145381	0.05953	0.019172	pCi	g	ARS1-B10-01677	0.43381	1						
ARS1-B10-01678-05	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	ASP-A-009	TH-228	0.789611	0.126861	0.158749	0.058263	0.022257	pCi	g	ARS1-B10-01678	0.66068	1						
ARS1-B10-01678-06	TLS-SB-IA5-15 (2.0-3.0) 02221CD	ARS1-10-00429-013	ASP-A-009	TH-228	0.804739	0.11622	0.151548	0.047301	0.01793	pCi	g	ARS1-B10-01678	0.84557	1						
ARS1-B10-01678-08	TLS-SB-IA5-15 (35.0-36.0) 02221C	ARS1-10-00429-015	ASP-A-009	TH-228	0.785871	0.125078	0.157054	0.056459	0.021502	pCi	g	ARS1-B10-01678	0.77289	1						
ARS1-B10-01678-09	TLS-SB-IA5-15 (37.0-38.0) 02221C	ARS1-10-00429-016	ASP-A-009	TH-228	0.619436	0.104665	0.128684	0.049837	0.018971	pCi	g	ARS1-B10-01678	0.86459	1						
ARS1-B10-01678-07	TLS-SB-IA5-15 (7.6-8.6) 02221C	ARS1-10-00429-014	ASP-A-009	TH-228	1.749031	0.20027	0.291193	0.05365	0.018838	pCi	g	ARS1-B10-01678	0.63603	1						
ARS1-B10-01678-22	TLS-SB-IA5-17 (18.5-19.5) 02221C	ARS1-10-00429-029	ASP-A-009	TH-228	0.959117	0.185558	0.21879	0.104433	0.040407	pCi	g	ARS1-B10-01678	0.41298	1						
ARS1-B10-01678-20	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	ASP-A-009	TH-228	0.335173	0.076635	0.086683	0.038419	0.013293	pCi	g	ARS1-B10-01678	0.75535	1						
ARS1-B10-01678-21	TLS-SB-IA5-17 (7.4-8.4) 02221C	ARS1-10-00429-028	ASP-A-009	TH-228	0.766575	0.116687	0.148995	0.048078	0.017985	pCi	g	ARS1-B10-01678	0.84961	1						
ARS1-B10-01678-14	TLS-SB-IA5-22 (21.4-22.4) 02221C	ARS1-10-00429-021	ASP-A-009	TH-228	0.804337	0.129876	0.162229	0.05727	0.021526	pCi	g	ARS1-B10-01678	0.65183	1						
ARS1-B10-01678-11	TLS-SB-IA5-22 (4.0-5.0) 02221C	ARS1-10-00429-018	ASP-A-009	TH-228	2.479352	0.285853	0.414132	0.072263	0.02463	pCi	g	ARS1-B10-01678	0.45596	1						
ARS1-B10-01678-12	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	ASP-A-009	TH-228	1.52964	0.174324	0.2541	0.056533	0.021409	pCi	g	ARS1-B10-01678	0.80674	1						
ARS1-B10-01678-13	TLS-SB-IA5-22 (9.0-10.0) 02221C	ARS1-10-00429-020	ASP-A-009	TH-228	1.943129	0.225248	0.325408	0.074575	0.028284	pCi	g	ARS1-B10-01678	0.56826	1						
ARS1-B10-01678-18	TLS-SB-IA5-8 (13.0-14.0) 02221C	ARS1-10-00429-025	ASP-A-009	TH-228	0.702349	0.119117	0.146269	0.049501	0.017852	pCi	g	ARS1-B10-01678	0.72099	1						
ARS1-B10-01678-16	TLS-SB-IA5-8 (4.0-5.0) 02221C	ARS1-10-00429-023	ASP-A-009	TH-228	0.893354	0.143839	0.179854	0.051403	0.017709	pCi	g	ARS1-B10-01678	0.65285	1						
ARS1-B10-01678-17	TLS-SB-IA5-8 (6.8-7.8) 02221C	ARS1-10-00429-024	ASP-A-009	TH-228	0.689676	0.148768	0.170528	0.093156	0.036211	pCi	g	ARS1-B10-01678	0.49446	1						
ARS1-B10-01678-04	TLS-SS-IA5-15 (0.5-1.0) 02221C	ARS1-10-00429-011	ASP-A-009	TH-228	2.991314	0.377254	0.522518	0.130422	0.048829	pCi	g	ARS1-B10-01678	0.30803	1						
ARS1-B10-01678-19	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	ASP-A-009	TH-228	0.750518	0.115836	0.147125	0.045137	0.016443	pCi	g	ARS1-B10-01678	0.77035	1						
ARS1-B10-01678-10	TLS-SS-IA5-22 (2.4-2.9) 02221C	ARS1-10-00429-017	ASP-A-009	TH-228	0.83391	0.128084	0.162983	0.052879	0.019734	pCi	g	ARS1-B10-01678	0.73331	1						
ARS1-B10-01678-15	TLS-SS-IA5-8 (1.5-2.0) 02221C	ARS1-10-00429-022	ASP-A-009	TH-228	0.677895	0.123687	0.148361	0.058826	0.021804	pCi	g	ARS1-B10-01678	0.66463	1						
ARS1-B10-01678-05	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	ASP-A-009	TH-230	0.844811	0.126274	0.162389	0.036939	0.011896	pCi	g	ARS1-B10-01678	0.66068	1						
ARS1-B10-01678-06	TLS-SB-IA5-15 (2.0-3.0) 02221CD	ARS1-10-00429-013	ASP-A-009	TH-230	0.77632	0.110348	0.144845	0.030734	0.009898	pCi	g	ARS1-B10-01678	0.84557	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01678-08	TLS-SB-IA5-15 (35.0-36.0) 02221C	ARS1-10-00429-015	ASP-A-009	TH-230	0.868322	0.12669	0.164511	0.037524	0.01233	pCi	g	ARS1-B10-01678	0.77289	1						
ARS1-B10-01678-09	TLS-SB-IA5-15 (37.0-38.0) 02221C	ARS1-10-00429-016	ASP-A-009	TH-230	0.602429	0.099156	0.123017	0.02978	0.009204	pCi	g	ARS1-B10-01678	0.86459	1						
ARS1-B10-01678-07	TLS-SB-IA5-15 (7.6-8.6) 02221C	ARS1-10-00429-014	ASP-A-009	TH-230	1.751875	0.195031	0.287868	0.032754	0.008741	pCi	g	ARS1-B10-01678	0.63603	1						
ARS1-B10-01678-22	TLS-SB-IA5-17 (18.5-19.5) 02221C	ARS1-10-00429-029	ASP-A-009	TH-230	1.560999	0.224068	0.292916	0.048429	0.012923	pCi	g	ARS1-B10-01678	0.41298	1						
ARS1-B10-01678-20	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	ASP-A-009	TH-230	0.359454	0.07654	0.08801	0.027604	0.008146	pCi	g	ARS1-B10-01678	0.75535	1						
ARS1-B10-01678-21	TLS-SB-IA5-17 (7.4-8.4) 02221C	ARS1-10-00429-028	ASP-A-009	TH-230	0.901797	0.121653	0.163336	0.01422	0.001322	pCi	g	ARS1-B10-01678	0.84961	1						
ARS1-B10-01678-14	TLS-SB-IA5-22 (21.4-22.4) 02221C	ARS1-10-00429-021	ASP-A-009	TH-230	0.800368	0.124186	0.157415	0.013593	0	pCi	g	ARS1-B10-01678	0.65183	1						
ARS1-B10-01678-11	TLS-SB-IA5-22 (4.0-5.0) 02221C	ARS1-10-00429-018	ASP-A-009	TH-230	2.82597	0.29789	0.453204	0.064105	0.021055	pCi	g	ARS1-B10-01678	0.45596	1						
ARS1-B10-01678-12	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	ASP-A-009	TH-230	1.515708	0.168801	0.249102	0.04313	0.015009	pCi	g	ARS1-B10-01678	0.80674	1						
ARS1-B10-01678-13	TLS-SB-IA5-22 (9.0-10.0) 02221C	ARS1-10-00429-020	ASP-A-009	TH-230	2.246381	0.234443	0.358713	0.036923	0.009853	pCi	g	ARS1-B10-01678	0.56826	1						
ARS1-B10-01678-18	TLS-SB-IA5-8 (13.0-14.0) 02221C	ARS1-10-00429-025	ASP-A-009	TH-230	0.756089	0.120272	0.15105	0.043398	0.015102	pCi	g	ARS1-B10-01678	0.72099	1						
ARS1-B10-01678-16	TLS-SB-IA5-8 (4.0-5.0) 02221C	ARS1-10-00429-023	ASP-A-009	TH-230	0.738822	0.127178	0.155395	0.036718	0.010715	pCi	g	ARS1-B10-01678	0.65285	1						
ARS1-B10-01678-17	TLS-SB-IA5-8 (6.8-7.8) 02221C	ARS1-10-00429-024	ASP-A-009	TH-230	0.562161	0.126788	0.143845	0.047623	0.013898	pCi	g	ARS1-B10-01678	0.49446	1						
ARS1-B10-01678-04	TLS-SS-IA5-15 (0.5-1.0) 02221C	ARS1-10-00429-011	ASP-A-009	TH-230	3.189954	0.377436	0.539536	0.078656	0.023664	pCi	g	ARS1-B10-01678	0.30803	1						
ARS1-B10-01678-19	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	ASP-A-009	TH-230	0.778363	0.113981	0.147788	0.025127	0.006705	pCi	g	ARS1-B10-01678	0.77035	1						
ARS1-B10-01678-10	TLS-SS-IA5-22 (2.4-2.9) 02221C	ARS1-10-00429-017	ASP-A-009	TH-230	1.038615	0.137965	0.186525	0.033854	0.010516	pCi	g	ARS1-B10-01678	0.73331	1						
ARS1-B10-01678-15	TLS-SS-IA5-8 (1.5-2.0) 02221C	ARS1-10-00429-022	ASP-A-009	TH-230	1.243679	0.16079	0.220107	0.038109	0.011778	pCi	g	ARS1-B10-01678	0.66463	1						
ARS1-B10-01678-05	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	ASP-A-009	TH-232	0.74066	0.11771	0.147881	0.028138	0.007509	pCi	g	ARS1-B10-01678	0.66068	1						
ARS1-B10-01678-06	TLS-SB-IA5-15 (2.0-3.0) 02221OD	ARS1-10-00429-013	ASP-A-009	TH-232	0.745401	0.107401	0.140183	0.010917	0	pCi	g	ARS1-B10-01678	0.84557	1						
ARS1-B10-01678-08	TLS-SB-IA5-15 (35.0-36.0) 02221C	ARS1-10-00429-015	ASP-A-009	TH-232	0.67964	0.11258	0.139361	0.042173	0.014667	pCi	g	ARS1-B10-01678	0.77289	1						
ARS1-B10-01678-09	TLS-SB-IA5-15 (37.0-38.0) 02221C	ARS1-10-00429-016	ASP-A-009	TH-232	0.577764	0.096855	0.119403	0.026869	0.00776	pCi	g	ARS1-B10-01678	0.86459	1						
ARS1-B10-01678-07	TLS-SB-IA5-15 (7.6-8.6) 02221C	ARS1-10-00429-014	ASP-A-009	TH-232	1.722977	0.193366	0.284173	0.03661	0.010684	pCi	g	ARS1-B10-01678	0.63603	1						
ARS1-B10-01678-22	TLS-SB-IA5-17 (18.5-19.5) 02221C	ARS1-10-00429-029	ASP-A-009	TH-232	0.727453	0.152833	0.176318	0.040776	0.00912	pCi	g	ARS1-B10-01678	0.41298	1						
ARS1-B10-01678-20	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	ASP-A-009	TH-232	0.415592	0.081917	0.09609	0.024212	0.006461	pCi	g	ARS1-B10-01678	0.75535	1						
ARS1-B10-01678-21	TLS-SB-IA5-17 (7.4-8.4) 02221C	ARS1-10-00429-028	ASP-A-009	TH-232	0.731628	0.109457	0.140712	0.011552	0	pCi	g	ARS1-B10-01678	0.84961	1						
ARS1-B10-01678-14	TLS-SB-IA5-22 (21.4-22.4) 02221C	ARS1-10-00429-021	ASP-A-009	TH-232	0.81086	0.125356	0.159118	0.032034	0.009234	pCi	g	ARS1-B10-01678	0.65183	1						
ARS1-B10-01678-11	TLS-SB-IA5-22 (4.0-5.0) 02221C	ARS1-10-00429-018	ASP-A-009	TH-232	2.32139	0.270023	0.389395	0.06573	0.02189	pCi	g	ARS1-B10-01678	0.45596	1						
ARS1-B10-01678-12	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	ASP-A-009	TH-232	1.571536	0.171303	0.255775	0.036315	0.011614	pCi	g	ARS1-B10-01678	0.80674	1						
ARS1-B10-01678-13	TLS-SB-IA5-22 (9.0-10.0) 02221C	ARS1-10-00429-020	ASP-A-009	TH-232	2.103593	0.227036	0.340857	0.046604	0.014711	pCi	g	ARS1-B10-01678	0.56826	1						
ARS1-B10-01678-18	TLS-SB-IA5-8 (13.0-14.0) 02221C	ARS1-10-00429-025	ASP-A-009	TH-232	0.543201	0.100695	0.120207	0.013168	0	pCi	g	ARS1-B10-01678	0.72099	1						
ARS1-B10-01678-16	TLS-SB-IA5-8 (4.0-5.0) 02221C	ARS1-10-00429-023	ASP-A-009	TH-232	0.66594	0.120154	0.14462	0.025063	0.004903	pCi	g	ARS1-B10-01678	0.65285	1						
ARS1-B10-01678-17	TLS-SB-IA5-8 (6.8-7.8) 02221C	ARS1-10-00429-024	ASP-A-009	TH-232	0.6682	0.13856	0.160378	0.0556	0.017906	pCi	g	ARS1-B10-01678	0.49446	1						
ARS1-B10-01678-04	TLS-SS-IA5-15 (0.5-1.0) 02221C	ARS1-10-00429-011	ASP-A-009	TH-232	3.418779	0.390423	0.568472	0.081874	0.025304	pCi	g	ARS1-B10-01678	0.30803	1						
ARS1-B10-01678-19	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	ASP-A-009	TH-232	0.582508	0.098348	0.120949	0.018577	0.003442	pCi	g	ARS1-B10-01678	0.77035	1						
ARS1-B10-01678-10	TLS-SS-IA5-22 (2.4-2.9) 02221C	ARS1-10-00429-017	ASP-A-009	TH-232	0.671432	0.110532	0.137122	0.023152	0.005178	pCi	g	ARS1-B10-01678	0.73331	1						
ARS1-B10-01678-15	TLS-SS-IA5-8 (1.5-2.0) 02221C	ARS1-10-00429-022	ASP-A-009	TH-232	0.784495	0.127473	0.158868	0.031147	0.008312	pCi	g	ARS1-B10-01678	0.66463	1						
ARS1-B10-01775-23	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	ASP-A-009	TH-228	0.58186	0.109409	0.13006	0.066386	0.026543	pCi	g	ARS1-B10-01775	0.76012	1						
ARS1-B10-01775-06	TLS-SB-IA5-5 (18.0-19.0) 02231OD	ARS1-10-00443-003	ASP-A-009	TH-228	1.046299	0.177779	0.218166	0.075954	0.02769	pCi	g	ARS1-B10-01775	0.52184	1						
ARS1-B10-01775-05	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	ASP-A-009	TH-228	0.778803	0.123235	0.15507	0.052408	0.019572	pCi	g	ARS1-B10-01775	0.7804	1						
ARS1-B10-01775-07	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	ASP-A-009	TH-228	0.600089	0.11058	0.132242	0.062833	0.02474	pCi	g	ARS1-B10-01775	0.75777	1						
ARS1-B10-01775-17	TLS-SB-IA5-13 (13.2-14.2) 02231C	ARS1-10-00443-014	ASP-A-009	TH-228	1.739206	0.270381	0.342477	0.122986	0.047311	pCi	g	ARS1-B10-01775	0.37461	1						
ARS1-B10-01775-18	TLS-SB-IA5-13 (13.2-14.2) 02231OD	ARS1-10-00443-015	ASP-A-009	TH-228	1.399153	0.163434	0.235173	0.052196	0.0195	pCi	g	ARS1-B10-01775	0.80967	1						
ARS1-B10-01775-19	TLS-SB-IA5-13 (18.8-19.8) 02231C	ARS1-10-00443-016	ASP-A-009	TH-228	1.774695	0.219726	0.30706	0.077954	0.029629	pCi	g	ARS1-B10-01775	0.56919	1						
ARS1-B10-01775-20	TLS-SB-IA5-13 (23.8-25.0) 02231C	ARS1-10-00443-017	ASP-A-009	TH-228	1.210526	0.157851	0.215226	0.044403	0.015035	pCi	g	ARS1-B10-01775	0.71648	1						
ARS1-B10-01775-21	TLS-SB-IA5-13 (25.8-26.8) 02231C	ARS1-10-00443-018	ASP-A-009	TH-228	0.718932	0.134384	0.160028	0.079178	0.031416	pCi	g	ARS1-B10-01775	0.61585	1						
ARS1-B10-01775-08	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	ASP-A-009	TH-228	0.721637	0.116064	0.145182	0.048251	0.01776	pCi	g	ARS1-B10-01775	0.79473	1						
ARS1-B10-01775-09	TLS-SB-IA5-5 (37.2-38.2) 02231OD	ARS1-10-00443-006	ASP-A-009	TH-228	0.700993	0.116844	0.144328	0.054226	0.020545	pCi	g	ARS1-B10-01775	0.80253	1						
ARS1-B10-01775-11	TLS-SB-IA5-7 (0.5-1.5) 02231C	ARS1-10-00443-008	ASP-A-009	TH-228	0.908805	0.170559	0.202867	0.101418	0.040314	pCi	g	ARS1-B10-01775	0.47933	1						
ARS1-B10-01775-12	TLS-SB-IA5-7 (0.5-1.5) 02231OD	ARS1-10-00443-009	ASP-A-009	TH-228	0.905373	0.129675	0.169674	0.055231	0.021316	pCi	g	ARS1-B10-01775	0.79533	1						
ARS1-B10-01775-13	TLS-SB-IA5-7 (2.0-3.0) 02231C	ARS1-10-00443-010	ASP-A-009	TH-228	0.74478	0.121271	0.151028	0.048759	0.017623	pCi	g	ARS1-B10-01775	0.79065	1						
ARS1-B10-01775-15	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	ASP-A-009	TH-228	0.840304	0.138227	0.171525	0.063917	0.02429	pCi	g	ARS1-B10-01775	0.66281	1						
ARS1-B10-01775-14	TLS-SB-IA5-7 (9.0-10.0) 02231C	ARS1-10-00443-011	ASP-A-009	TH-228	0.757973	0.119836	0.15084	0.055857	0.021553	pCi	g	ARS1-B10-01775	0.86067	1						
ARS1-B10-01775-16	TLS-SS-IA5-13 (1.7-2.3) 02231C	ARS1-10-00443-013	ASP-A-009	TH-228	0.672131	0.138628	0.160676	0.077211	0.029154	pCi	g	ARS1-B10-01775	0.53513	1						
ARS1-B10-01775-22	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	ASP-A-009	TH-228	0.768372	0.142103	0.169756	0.080854	0.031817	pCi	g	ARS1-B10-01775	0.59278	1						
ARS1-B10-01775-04	TLS-SS-IA5-5 (1.1-1.6) 02231C	ARS1-10-00443-001	ASP-A-009	TH-228	0.92541	0.142402	0.181074	0.068834	0.027085	pCi	g	ARS1-B10-01775	0.70734	1						
ARS1-B10-01775-10	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	ASP-A-009	TH-228	0.894627	0.143257	0.179481	0.079174	0.032071	pCi	g	ARS1-B10-01775	0.71582	1						
ARS1-B10-01775-23	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	ASP-A-009	TH-230	1.080895	0.139704	0.191268	0.025242	0.006271	pCi	g	ARS1-B10-01775	0.76012	1						
ARS1-B10-01775-06	TLS-SB-IA5-5 (18.0-19.0) 02231C	ARS1-10-00443-003	ASP-A-009	TH-230	1.408167	0.199407	0.262161	0.058442	0.019395	pCi	g	ARS1-B10-01775	0.52184	1						
ARS1-B10-01775-05	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	ASP-A-009	TH-230	0.89118	0.126566	0.166193	0.019119	0.003225	pCi	g	ARS1-B10-01775	0.7804	1						
ARS1-B10-01775-07	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	ASP-A-009	TH-230	0.600545	0.104829	0.127504	0.031984	0.009615	pCi	g	ARS1-B10-01775	0.75777	1						
ARS1-B10-01775-17	TLS-SB-IA5-13 (13.2-14.2) 02231C	ARS1-10-00443-014	ASP-A-009	TH-230	6.878063	0.516112	0.978472	0.106682	0.039796	pCi	g	ARS1-B10-01775	0.37461	1						
ARS1-B10-01775-18	TLS-SB-IA5-13 (13.2-14.2) 02231OD	ARS1-10-00443-015	ASP-A-009	TH-230	8.91053	0.399045	1.148485	0.025019	0.006208	pCi	g	ARS1-B10-01775	0.80967	1						
ARS1-B10-01775-19	TLS-SB-IA5-13 (18.8-19.8) 02231C	ARS1-10-00443-016	ASP-A-009	TH-230	2.082226	0.23053	0.341286	0.053035	0.017589	pCi	g	ARS1-B10-01775	0.56919	1						
ARS1-B10-01775-20	TLS-SB-IA5-13 (23.8-25.0) 02231C	ARS1-10-00443-017	ASP-A-009	TH-230	2.02501	0.198398	0.315058	0.027173	0.006742	pCi	g	ARS1-B10-01775	0.71648	1						
ARS1-B10-01775-21	TLS-SB-IA5-13 (25.8-26.8) 02231C	ARS1-10-00443-018	ASP-A-009	TH-230	0.671455	0.121898	0.146441	0.015611	0	pCi	g	ARS1-B10-01775	0.61585	1						
ARS1-B10-01775-08	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	ASP-A-009	TH-230	0.699433	0.110496	0.139124	0.032936	0.010388	pCi	g	ARS1-B10-01775	0.79473	1						
ARS1-B10-01775-09	TLS-SB-IA5-5 (37.2-38.2) 02231OD	ARS1-10-00443-006	ASP-A-009	TH-230	0.703953	0.112622	0.141146	0.033984	0.010719	pCi	g	ARS1-B10-01775	0.80253	1						
ARS1-B10-01775-11	TLS-SB-IA5-7 (0.5-1.5) 02231C	ARS1-10-00443-008	ASP-A-009	TH-230	0.709985	0.142312	0.16618	0.047289	0.013716	pCi	g	ARS1-B10-01775	0.47933	1						
ARS1-B10-01775-12	TLS-SB-IA5-7 (0.5-1.5) 02231OD	ARS1-10-00443-009	ASP-A-009	TH-230	0.684464	0.108521	0.136455	0.028815	0.00839	pCi	g	ARS1-B10-01775	0.79533	1						
ARS1-B10-01775-13	TLS-SB-IA5-7 (2.0-3.0) 02231C	ARS1-10-00443-010	ASP-A-009	TH-230	0.753354	0.118376	0.149342	0.038355	0.012725	pCi	g	ARS1-B10-01775	0.79065	1						
ARS1-B10-01775-15	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	ASP-A-009	TH-230	0.648336	0.1173	0.141065	0.043523	0.014437	pCi	g	ARS1-B10-01775	0.66281	1						
ARS1-B10-01775-14	TLS-SB-IA5-7 (9.0-10.0) 02231C	ARS1-10-00443-011	ASP-A-009	TH-230	1.03253	0.134005	0.183113	0.031331	0.009576	pCi	g	ARS1-B10-01775	0.86067	1						
ARS1-B10-01775-16	TLS-SS-IA5-13 (1.7-2.3) 02231C	ARS1-10-00443-013	ASP-A-009	TH-230	0.760984	0.140358	0.167808	0.043214	0.01258	pCi	g	ARS1-B10-01775	0.53513	1						
ARS1-B10-01775-22	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	ASP-A-009	TH-230	0.919595	0.146733	0.184074	0.032686	0.008121	pCi	g	ARS1-B10-01775	0.59278	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01775-04	TLS-SS-IA5-5 (1.1-1.6) 02231C	ARS1-10-00443-001	ASP-A-009	TH-230	0.920379	0.136431	0.176031	0.044927	0.01546	pCi	g	ARS1-B10-01775	0.70734	1						
ARS1-B10-01775-10	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	ASP-A-009	TH-230	0.794042	0.128237	0.16017	0.04268	0.014162	pCi	g	ARS1-B10-01775	0.71582	1						
ARS1-B10-01775-23	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	ASP-A-009	TH-232	0.660042	0.108904	0.134996	0.012676	0	pCi	g	ARS1-B10-01775	0.76012	1						
ARS1-B10-01775-06	TLS-SB-IA5-5 (18.0-19.0) 02231C	ARS1-10-00443-003	ASP-A-009	TH-232	1.259199	0.188345	0.242146	0.055801	0.018094	pCi	g	ARS1-B10-01775	0.52184	1						
ARS1-B10-01775-05	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	ASP-A-009	TH-232	0.782702	0.11844	0.151581	0.012643	0	pCi	g	ARS1-B10-01775	0.7804	1						
ARS1-B10-01775-07	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	ASP-A-009	TH-232	0.560673	0.100859	0.121509	0.025285	0.006278	pCi	g	ARS1-B10-01775	0.75777	1						
ARS1-B10-01775-17	TLS-SB-IA5-13 (13.2-14.2) 02231C	ARS1-10-00443-014	ASP-A-009	TH-232	2.140021	0.289814	0.388444	0.101691	0.037328	pCi	g	ARS1-B10-01775	0.37461	1						
ARS1-B10-01775-18	TLS-SB-IA5-13 (13.2-14.2) 02231OD	ARS1-10-00443-015	ASP-A-009	TH-232	1.233069	0.148454	0.210353	0.024969	0.006196	pCi	g	ARS1-B10-01775	0.80967	1						
ARS1-B10-01775-19	TLS-SB-IA5-13 (18.8-19.8) 02231C	ARS1-10-00443-016	ASP-A-009	TH-232	1.673696	0.207066	0.289474	0.058826	0.020503	pCi	g	ARS1-B10-01775	0.56919	1						
ARS1-B10-01775-20	TLS-SB-IA5-13 (23.8-25.0) 02231C	ARS1-10-00443-017	ASP-A-009	TH-232	0.930613	0.134729	0.175506	0.032693	0.009515	pCi	g	ARS1-B10-01775	0.71648	1						
ARS1-B10-01775-21	TLS-SB-IA5-13 (25.8-26.8) 02231C	ARS1-10-00443-018	ASP-A-009	TH-232	0.663306	0.12138	0.145464	0.030921	0.007671	pCi	g	ARS1-B10-01775	0.61585	1						
ARS1-B10-01775-08	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	ASP-A-009	TH-232	0.618452	0.103638	0.12778	0.029065	0.008465	pCi	g	ARS1-B10-01775	0.79473	1						
ARS1-B10-01775-09	TLS-SB-IA5-5 (37.2-38.2) 02231OD	ARS1-10-00443-006	ASP-A-009	TH-232	0.628595	0.105887	0.130322	0.024874	0.006176	pCi	g	ARS1-B10-01775	0.80253	1						
ARS1-B10-01775-11	TLS-SB-IA5-7 (0.5-1.5) 02231C	ARS1-10-00443-008	ASP-A-009	TH-232	0.790915	0.149515	0.17746	0.039363	0.009773	pCi	g	ARS1-B10-01775	0.47933	1						
ARS1-B10-01775-12	TLS-SB-IA5-7 (0.5-1.5) 02231OD	ARS1-10-00443-009	ASP-A-009	TH-232	0.517554	0.095187	0.1139	0.03849	0.01324	pCi	g	ARS1-B10-01775	0.79533	1						
ARS1-B10-01775-13	TLS-SB-IA5-7 (2.0-3.0) 02231C	ARS1-10-00443-010	ASP-A-009	TH-232	0.691993	0.11342	0.140921	0.038279	0.012699	pCi	g	ARS1-B10-01775	0.79065	1						
ARS1-B10-01775-15	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	ASP-A-009	TH-232	0.676819	0.118745	0.144194	0.029028	0.007204	pCi	g	ARS1-B10-01775	0.66281	1						
ARS1-B10-01775-14	TLS-SB-IA5-7 (9.0-10.0) 02231C	ARS1-10-00443-011	ASP-A-009	TH-232	0.797071	0.117648	0.152057	0.029497	0.008671	pCi	g	ARS1-B10-01775	0.86067	1						
ARS1-B10-01775-16	TLS-SS-IA5-13 (1.7-2.3) 02231C	ARS1-10-00443-013	ASP-A-009	TH-232	0.692798	0.134279	0.158246	0.048771	0.015376	pCi	g	ARS1-B10-01775	0.53513	1						
ARS1-B10-01775-22	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	ASP-A-009	TH-232	0.559669	0.114736	0.133191	0.036548	0.010068	pCi	g	ARS1-B10-01775	0.59278	1						
ARS1-B10-01775-04	TLS-SS-IA5-5 (1.1-1.6) 02231C	ARS1-10-00443-001	ASP-A-009	TH-232	0.539926	0.104968	0.123599	0.043987	0.015004	pCi	g	ARS1-B10-01775	0.70734	1						
ARS1-B10-01775-10	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	ASP-A-009	TH-232	0.970904	0.141182	0.183581	0.038808	0.01224	pCi	g	ARS1-B10-01775	0.71582	1						
ARS1-B10-01776-06	TLS-SB-IA5-4 (14.0-15.0) 02231OD	ARS1-10-00443-023	ASP-A-009	TH-228	0.752491	0.127815	0.156869	0.05591	0.020579	pCi	g	ARS1-B10-01776	0.68119	1						
ARS1-B10-01776-07	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	ASP-A-009	TH-228	0.571337	0.103856	0.124717	0.05215	0.019759	pCi	g	ARS1-B10-01776	0.70518	1						
ARS1-B10-01776-04	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	ASP-A-009	TH-228	0.771946	0.158391	0.183827	0.080508	0.02935	pCi	g	ARS1-B10-01776	0.49778	1						
ARS1-B10-01776-05	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	ASP-A-009	TH-228	0.496551	0.093633	0.111215	0.054273	0.02137	pCi	g	ARS1-B10-01776	0.84899	1						
ARS1-B10-01776-11	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	ASP-A-009	TH-228	0.757812	0.142285	0.169215	0.065345	0.023618	pCi	g	ARS1-B10-01776	0.59164	1						
ARS1-B10-01776-12	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	ASP-A-009	TH-228	1.522345	0.253936	0.313586	0.124266	0.047949	pCi	g	ARS1-B10-01776	0.37368	1						
ARS1-B10-01776-13	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	ASP-A-009	TH-228	0.725253	0.181066	0.201167	0.120777	0.045899	pCi	g	ARS1-B10-01776	0.32241	1						
ARS1-B10-01776-09	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	ASP-A-009	TH-228	0.463549	0.095953	0.111112	0.061959	0.024629	pCi	g	ARS1-B10-01776	0.78394	1						
ARS1-B10-01776-10	TLS-SB-IA5-6 (9.0-10.0) 02231OD	ARS1-10-00443-027	ASP-A-009	TH-228	0.435826	0.110002	0.121963	0.076968	0.029705	pCi	g	ARS1-B10-01776	0.46224	1						
ARS1-B10-01776-15	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	ASP-A-009	TH-228	0.613336	0.111426	0.133831	0.058352	0.022447	pCi	g	ARS1-B10-01776	0.73911	1						
ARS1-B10-01776-16	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 0224	ARS1-10-00463-003	ASP-A-009	TH-228	0.386182	0.103992	0.113986	0.070938	0.026503	pCi	g	ARS1-B10-01776	0.60684	1						
ARS1-B10-01776-21	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	ASP-A-009	TH-228	0.499895	0.091103	0.109316	0.05383	0.021523	pCi	g	ARS1-B10-01776	0.97239	1						
ARS1-B10-01776-22	TLS-SB-IA5-12 (3.3-4.3) 02241OD	ARS1-10-00463-009	ASP-A-009	TH-228	0.615616	0.108649	0.131684	0.060455	0.02393	pCi	g	ARS1-B10-01776	0.7517	1						
ARS1-B10-01776-17	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	ASP-A-009	TH-228	0.702002	0.110823	0.139572	0.049367	0.018764	pCi	g	ARS1-B10-01776	0.87012	1						
ARS1-B10-01776-18	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	ASP-A-009	TH-228	0.675172	0.102117	0.130716	0.033172	0.011232	pCi	g	ARS1-B10-01776	0.92545	1						
ARS1-B10-01776-19	TLS-SB-IA5-2 (59.0-60.0) 02241OD	ARS1-10-00463-006	ASP-A-009	TH-228	0.749412	0.149448	0.174752	0.093024	0.03691	pCi	g	ARS1-B10-01776	0.51903	1						
ARS1-B10-01776-20	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	ASP-A-009	TH-228	0.72531	0.118311	0.147248	0.060276	0.02372	pCi	g	ARS1-B10-01776	0.79323	1						
ARS1-B10-01776-14	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	ASP-A-009	TH-228	0.708591	0.123246	0.15008	0.058909	0.022243	pCi	g	ARS1-B10-01776	0.68078	1						
ARS1-B10-01776-06	TLS-SB-IA5-4 (14.0-15.0) 02231OD	ARS1-10-00443-023	ASP-A-009	TH-230	0.767471	0.124627	0.155357	0.038158	0.012035	pCi	g	ARS1-B10-01776	0.68119	1						
ARS1-B10-01776-07	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	ASP-A-009	TH-230	0.710702	0.110931	0.140299	0.032678	0.010307	pCi	g	ARS1-B10-01776	0.70518	1						
ARS1-B10-01776-04	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	ASP-A-009	TH-230	0.915952	0.166259	0.199743	0.061936	0.020554	pCi	g	ARS1-B10-01776	0.49778	1						
ARS1-B10-01776-05	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	ASP-A-009	TH-230	0.557937	0.093861	0.115572	0.027622	0.008304	pCi	g	ARS1-B10-01776	0.84899	1						
ARS1-B10-01776-11	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	ASP-A-009	TH-230	0.920115	0.151557	0.187979	0.051394	0.01705	pCi	g	ARS1-B10-01776	0.59164	1						
ARS1-B10-01776-12	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	ASP-A-009	TH-230	1.642886	0.252465	0.321192	0.069691	0.021299	pCi	g	ARS1-B10-01776	0.37368	1						
ARS1-B10-01776-13	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	ASP-A-009	TH-230	0.552549	0.150779	0.164906	0.082228	0.027276	pCi	g	ARS1-B10-01776	0.32241	1						
ARS1-B10-01776-09	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	ASP-A-009	TH-230	0.393392	0.082847	0.095521	0.028885	0.008378	pCi	g	ARS1-B10-01776	0.78394	1						
ARS1-B10-01776-10	TLS-SB-IA5-6 (9.0-10.0) 02231OD	ARS1-10-00443-027	ASP-A-009	TH-230	0.513906	0.111399	0.127544	0.04015	0.011691	pCi	g	ARS1-B10-01776	0.46224	1						
ARS1-B10-01776-15	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	ASP-A-009	TH-230	0.72523	0.117178	0.146333	0.050656	0.018897	pCi	g	ARS1-B10-01776	0.73911	1						
ARS1-B10-01776-16	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 0224	ARS1-10-00463-003	ASP-A-009	TH-230	0.47151	0.107509	0.121678	0.034029	0.008444	pCi	g	ARS1-B10-01776	0.60684	1						
ARS1-B10-01776-21	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	ASP-A-009	TH-230	0.613945	0.094893	0.12046	0.020479	0.005087	pCi	g	ARS1-B10-01776	0.97239	1						
ARS1-B10-01776-22	TLS-SB-IA5-12 (3.3-4.3) 02241OD	ARS1-10-00463-009	ASP-A-009	TH-230	0.736323	0.112817	0.143692	0.033654	0.01081	pCi	g	ARS1-B10-01776	0.7517	1						
ARS1-B10-01776-17	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	ASP-A-009	TH-230	0.723906	0.108579	0.139442	0.033612	0.011148	pCi	g	ARS1-B10-01776	0.87012	1						
ARS1-B10-01776-18	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	ASP-A-009	TH-230	0.749727	0.104469	0.138291	0.020316	0.005041	pCi	g	ARS1-B10-01776	0.92545	1						
ARS1-B10-01776-19	TLS-SB-IA5-2 (59.0-60.0) 02241OD	ARS1-10-00463-006	ASP-A-009	TH-230	0.756563	0.140305	0.167471	0.018355	0	pCi	g	ARS1-B10-01776	0.51903	1						
ARS1-B10-01776-20	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	ASP-A-009	TH-230	0.866386	0.122942	0.161491	0.024377	0.006056	pCi	g	ARS1-B10-01776	0.79323	1						
ARS1-B10-01776-14	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	ASP-A-009	TH-230	0.804211	0.125884	0.159041	0.032997	0.009606	pCi	g	ARS1-B10-01776	0.68078	1						
ARS1-B10-01776-06	TLS-SB-IA5-4 (14.0-15.0) 02231OD	ARS1-10-00443-023	ASP-A-009	TH-232	0.571309	0.107344	0.127634	0.033673	0.009807	pCi	g	ARS1-B10-01776	0.68119	1						
ARS1-B10-01776-07	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	ASP-A-009	TH-232	0.634382	0.104298	0.129447	0.023918	0.005939	pCi	g	ARS1-B10-01776	0.70518	1						
ARS1-B10-01776-04	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	ASP-A-009	TH-232	0.781481	0.153454	0.180192	0.059137	0.019176	pCi	g	ARS1-B10-01776	0.49778	1						
ARS1-B10-01776-05	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	ASP-A-009	TH-232	0.41647	0.080819	0.095212	0.021838	0.005422	pCi	g	ARS1-B10-01776	0.84899	1						
ARS1-B10-01776-11	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	ASP-A-009	TH-232	0.711608	0.133496	0.158802	0.051291	0.017016	pCi	g	ARS1-B10-01776	0.59164	1						
ARS1-B10-01776-12	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	ASP-A-009	TH-232	1.557862	0.245433	0.309335	0.065611	0.019287	pCi	g	ARS1-B10-01776	0.37368	1						
ARS1-B10-01776-13	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	ASP-A-009	TH-232	0.585217	0.152239	0.167868	0.054842	0.013611	pCi	g	ARS1-B10-01776	0.32241	1						
ARS1-B10-01776-09	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	ASP-A-009	TH-232	0.329682	0.07555	0.085414	0.024044	0.005969	pCi	g	ARS1-B10-01776	0.78394	1						
ARS1-B10-01776-10	TLS-SB-IA5-6 (9.0-10.0) 02231OD	ARS1-10-00443-027	ASP-A-009	TH-232	0.363282	0.0954	0.105019	0.05363	0.018448	pCi	g	ARS1-B10-01776	0.46224	1						
ARS1-B10-01776-15	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	ASP-A-009	TH-232	0.607668	0.107256	0.129992	0.048286	0.017724	pCi	g	ARS1-B10-01776	0.73911	1						
ARS1-B10-01776-16	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 0224	ARS1-10-00463-003	ASP-A-009	TH-232	0.344718	0.091979	0.100975	0.033961	0.008427	pCi	g	ARS1-B10-01776	0.60684	1						
ARS1-B10-01776-21	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	ASP-A-009	TH-232	0.598005	0.093368	0.118073	0.010284	0	pCi	g	ARS1-B10-01776	0.97239	1						
ARS1-B10-01776-22	TLS-SB-IA5-12 (3.3-4.3) 02241OD	ARS1-10-00463-009	ASP-A-009	TH-232	0.585041	0.100141	0.122589	0.025794	0.006892	pCi	g	ARS1-B10-01776	0.7517	1						
ARS1-B10-01776-17	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	ASP-A-009	TH-232	0.702344	0.107164	0.136711	0.037283	0.012994	pCi	g	ARS1-B10-01776	0.87012	1						
ARS1-B10-01776-18	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	ASP-A-009	TH-232	0.573892	0.091552	0.114859	0.024443	0.007114	pCi	g	ARS1-B10-01776	0.92545	1						
ARS1-B10-01776-19	TLS-SB-IA5-2 (59.0-60.0) 02241OD	ARS1-10-00463-006	ASP-A-009	TH-232	0.60612	0.125917	0.145676	0.036357	0.009019	pCi	g	ARS1-B10-01776	0.51903	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01776-20	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	ASP-A-009	TH-232	0.697097	0.110341	0.138829	0.027257	0.007509	pCi	g	ARS1-B10-01776	0.79323	1						
ARS1-B10-01776-14	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	ASP-A-009	TH-232	0.561072	0.105538	0.125446	0.03724	0.011741	pCi	g	ARS1-B10-01776	0.68078	1						
ARS1-B10-01789-13	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	ASP-A-009	TH-228	0.718104	0.130204	0.156479	0.068067	0.026184	pCi	g	ARS1-B10-01789	0.67158	1						
ARS1-B10-01789-07	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	ASP-A-009	TH-228	1.4165	0.206585	0.268303	0.098405	0.039117	pCi	g	ARS1-B10-01789	0.52565	1						
ARS1-B10-01789-08	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	ASP-A-009	TH-228	1.532007	0.217793	0.285863	0.092122	0.035553	pCi	g	ARS1-B10-01789	0.47612	1						
ARS1-B10-01789-09	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	ASP-A-009	TH-228	1.69982	0.225546	0.305085	0.074634	0.026976	pCi	g	ARS1-B10-01789	0.51523	1						
ARS1-B10-01789-04	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	ASP-A-009	TH-228	0.76454	0.143648	0.170801	0.068964	0.025384	pCi	g	ARS1-B10-01789	0.55149	1						
ARS1-B10-01789-05	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	ASP-A-009	TH-228	0.461813	0.130956	0.142354	0.096237	0.036462	pCi	g	ARS1-B10-01789	0.43409	1						
ARS1-B10-01789-11	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	ASP-A-009	TH-228	0.984802	0.162378	0.201329	0.075248	0.028596	pCi	g	ARS1-B10-01789	0.51967	1						
ARS1-B10-01789-06	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	ASP-A-009	TH-228	0.843846	0.149143	0.180679	0.089694	0.036333	pCi	g	ARS1-B10-01789	0.59238	1						
ARS1-B10-01789-14	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	ASP-A-009	TH-228	0.932424	0.154636	0.191343	0.06876	0.025689	pCi	g	ARS1-B10-01789	0.63448	1						
ARS1-B10-01789-15	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	ASP-A-009	TH-228	0.682386	0.130558	0.154426	0.069236	0.026316	pCi	g	ARS1-B10-01789	0.59753	1						
ARS1-B10-01789-22	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	ASP-A-009	TH-228	0.448814	0.085387	0.10116	0.043006	0.016061	pCi	g	ARS1-B10-01789	0.82162	1						
ARS1-B10-01789-23	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	ASP-A-009	TH-228	0.345656	0.098104	0.106628	0.066267	0.024158	pCi	g	ARS1-B10-01789	0.60197	1						
ARS1-B10-01789-18	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	ASP-A-009	TH-228	0.472159	0.108084	0.122224	0.0736	0.028963	pCi	g	ARS1-B10-01789	0.64311	1						
ARS1-B10-01789-19	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	ASP-A-009	TH-228	0.821974	0.144524	0.175375	0.08281	0.03311	pCi	g	ARS1-B10-01789	0.54303	1						
ARS1-B10-01789-17	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	ASP-A-009	TH-228	0.79713	0.163773	0.190008	0.104515	0.04147	pCi	g	ARS1-B10-01789	0.3871	1						
ARS1-B10-01789-20	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	ASP-A-009	TH-228	0.77568	0.132652	0.162436	0.071805	0.028422	pCi	g	ARS1-B10-01789	0.70172	1						
ARS1-B10-01789-12	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	ASP-A-009	TH-228	0.980826	0.184063	0.218933	0.094244	0.035585	pCi	g	ARS1-B10-01789	0.45562	1						
ARS1-B10-01789-21	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	ASP-A-009	TH-228	0.641598	0.141796	0.161614	0.093791	0.036905	pCi	g	ARS1-B10-01789	0.52616	1						
ARS1-B10-01789-16	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	ASP-A-009	TH-228	0.604063	0.121147	0.141445	0.051533	0.017449	pCi	g	ARS1-B10-01789	0.58952	1						
ARS1-B10-01789-13	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	ASP-A-009	TH-230	0.63187	0.118893	0.141307	0.059114	0.022052	pCi	g	ARS1-B10-01789	0.67158	1						
ARS1-B10-01789-07	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	ASP-A-009	TH-230	1.550964	0.206446	0.27885	0.045892	0.01331	pCi	g	ARS1-B10-01789	0.52565	1						
ARS1-B10-01789-08	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	ASP-A-009	TH-230	1.475717	0.205611	0.272189	0.04807	0.013997	pCi	g	ARS1-B10-01789	0.47612	1						
ARS1-B10-01789-09	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	ASP-A-009	TH-230	2.135152	0.245648	0.35628	0.05872	0.019481	pCi	g	ARS1-B10-01789	0.51523	1						
ARS1-B10-01789-04	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	ASP-A-009	TH-230	0.818843	0.143157	0.174035	0.047091	0.014853	pCi	g	ARS1-B10-01789	0.55149	1						
ARS1-B10-01789-05	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	ASP-A-009	TH-230	0.642148	0.144192	0.163752	0.060335	0.01903	pCi	g	ARS1-B10-01789	0.43409	1						
ARS1-B10-01789-11	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	ASP-A-009	TH-230	0.693377	0.131773	0.156163	0.051247	0.016999	pCi	g	ARS1-B10-01789	0.51967	1						
ARS1-B10-01789-06	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	ASP-A-009	TH-230	0.769994	0.134616	0.163652	0.04836	0.016046	pCi	g	ARS1-B10-01789	0.59238	1						
ARS1-B10-01789-14	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	ASP-A-009	TH-230	0.858863	0.142589	0.176371	0.032998	0.008188	pCi	g	ARS1-B10-01789	0.63448	1						
ARS1-B10-01789-15	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	ASP-A-009	TH-230	0.746171	0.130928	0.158981	0.04716	0.015641	pCi	g	ARS1-B10-01789	0.59753	1						
ARS1-B10-01789-22	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	ASP-A-009	TH-230	2.234133	0.181558	0.325381	0.015703	0.002649	pCi	g	ARS1-B10-01789	0.82162	1						
ARS1-B10-01789-23	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	ASP-A-009	TH-230	0.450757	0.106642	0.119752	0.051033	0.016936	pCi	g	ARS1-B10-01789	0.60197	1						
ARS1-B10-01789-18	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	ASP-A-009	TH-230	1.169668	0.157869	0.211913	0.029783	0.0074	pCi	g	ARS1-B10-01789	0.64311	1						
ARS1-B10-01789-19	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	ASP-A-009	TH-230	0.687891	0.124707	0.14988	0.031519	0.00783	pCi	g	ARS1-B10-01789	0.54303	1						
ARS1-B10-01789-17	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	ASP-A-009	TH-230	0.847201	0.157411	0.187783	0.020632	0	pCi	g	ARS1-B10-01789	0.3871	1						
ARS1-B10-01789-20	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	ASP-A-009	TH-230	0.878251	0.134308	0.171189	0.039991	0.012845	pCi	g	ARS1-B10-01789	0.70172	1						
ARS1-B10-01789-12	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	ASP-A-009	TH-230	1.00679	0.178394	0.215942	0.052811	0.015374	pCi	g	ARS1-B10-01789	0.45562	1						
ARS1-B10-01789-21	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	ASP-A-009	TH-230	0.732822	0.143086	0.16828	0.061269	0.021084	pCi	g	ARS1-B10-01789	0.52616	1						
ARS1-B10-01789-16	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	ASP-A-009	TH-230	0.820377	0.136331	0.168574	0.031575	0.007834	pCi	g	ARS1-B10-01789	0.58952	1						
ARS1-B10-01789-13	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	ASP-A-009	TH-232	0.940064	0.143424	0.182973	0.056349	0.020684	pCi	g	ARS1-B10-01789	0.67158	1						
ARS1-B10-01789-07	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	ASP-A-009	TH-232	1.225231	0.183114	0.235498	0.0382	0.009484	pCi	g	ARS1-B10-01789	0.52565	1						
ARS1-B10-01789-08	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	ASP-A-009	TH-232	0.932873	0.164889	0.199751	0.06421	0.022087	pCi	g	ARS1-B10-01789	0.47612	1						
ARS1-B10-01789-09	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	ASP-A-009	TH-232	1.48476	0.205038	0.272475	0.058602	0.019442	pCi	g	ARS1-B10-01789	0.51523	1						
ARS1-B10-01789-04	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	ASP-A-009	TH-232	0.621773	0.124503	0.145424	0.041557	0.012103	pCi	g	ARS1-B10-01789	0.55149	1						
ARS1-B10-01789-05	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	ASP-A-009	TH-232	0.565855	0.134175	0.150599	0.04416	0.010965	pCi	g	ARS1-B10-01789	0.43409	1						
ARS1-B10-01789-11	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	ASP-A-009	TH-232	0.751311	0.135779	0.163344	0.034179	0.008483	pCi	g	ARS1-B10-01789	0.51967	1						
ARS1-B10-01789-06	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	ASP-A-009	TH-232	0.808198	0.137378	0.168564	0.043972	0.013869	pCi	g	ARS1-B10-01789	0.59238	1						
ARS1-B10-01789-14	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	ASP-A-009	TH-232	0.66746	0.125658	0.149324	0.032932	0.008172	pCi	g	ARS1-B10-01789	0.63448	1						
ARS1-B10-01789-15	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	ASP-A-009	TH-232	0.696771	0.126978	0.152365	0.05231	0.018232	pCi	g	ARS1-B10-01789	0.59753	1						
ARS1-B10-01789-22	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	ASP-A-009	TH-232	0.363133	0.073113	0.085274	0.010384	0	pCi	g	ARS1-B10-01789	0.82162	1						
ARS1-B10-01789-23	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	ASP-A-009	TH-232	0.380819	0.097979	0.108251	0.048727	0.0158	pCi	g	ARS1-B10-01789	0.60197	1						
ARS1-B10-01789-18	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	ASP-A-009	TH-232	0.498026	0.103329	0.119582	0.033302	0.009174	pCi	g	ARS1-B10-01789	0.64311	1						
ARS1-B10-01789-19	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	ASP-A-009	TH-232	0.673504	0.122927	0.147435	0.015828	0	pCi	g	ARS1-B10-01789	0.54303	1						
ARS1-B10-01789-17	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	ASP-A-009	TH-232	0.693803	0.142818	0.165615	0.040866	0.010138	pCi	g	ARS1-B10-01789	0.3871	1						
ARS1-B10-01789-20	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	ASP-A-009	TH-232	0.611501	0.111656	0.1339	0.030651	0.00819	pCi	g	ARS1-B10-01789	0.70172	1						
ARS1-B10-01789-12	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	ASP-A-009	TH-232	0.734291	0.153041	0.176911	0.059602	0.018791	pCi	g	ARS1-B10-01789	0.45562	1						
ARS1-B10-01789-21	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	ASP-A-009	TH-232	0.340214	0.098934	0.107138	0.059987	0.020462	pCi	g	ARS1-B10-01789	0.52616	1						
ARS1-B10-01789-16	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	ASP-A-009	TH-232	0.465881	0.103237	0.117594	0.037989	0.011057	pCi	g	ARS1-B10-01789	0.58952	1						
ARS1-B10-01790-05	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	ASP-A-009	TH-228	0.624176	0.140519	0.159489	0.097184	0.038631	pCi	g	ARS1-B10-01790	0.51098	1						
ARS1-B10-01790-04	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	ASP-A-009	TH-228	0.763753	0.142793	0.170031	0.090016	0.036463	pCi	g	ARS1-B10-01790	0.64007	1						
ARS1-B10-01790-12	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	ASP-A-009	TH-228	0.804824	0.135994	0.1672	0.061523	0.022985	pCi	g	ARS1-B10-01790	0.71033	1						
ARS1-B10-01790-13	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	ASP-A-009	TH-228	0.852109	0.143078	0.176288	0.067445	0.025635	pCi	g	ARS1-B10-01790	0.65324	1						
ARS1-B10-01790-14	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	ASP-A-009	TH-228	1.248359	0.145299	0.209465	0.036577	0.012385	pCi	g	ARS1-B10-01790	0.87309	1						
ARS1-B10-01790-15	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	ASP-A-009	TH-228	0.672124	0.111041	0.137582	0.058764	0.023317	pCi	g	ARS1-B10-01790	0.85428	1						
ARS1-B10-01790-07	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	ASP-A-009	TH-228	0.452545	0.096528	0.110947	0.049822	0.018008	pCi	g	ARS1-B10-01790	0.76738	1						
ARS1-B10-01790-08	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	ASP-A-009	TH-228	0.567273	0.126536	0.143916	0.079873	0.03082	pCi	g	ARS1-B10-01790	0.60347	1						
ARS1-B10-01790-09	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	ASP-A-009	TH-228	0.447971	0.092149	0.106877	0.052078	0.019791	pCi	g	ARS1-B10-01790	0.80907	1						
ARS1-B10-01790-10	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	ASP-A-009	TH-228	0.542506	0.126375	0.142372	0.078241	0.029543	pCi	g	ARS1-B10-01790	0.54512	1						
ARS1-B10-01790-11	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	ASP-A-009	TH-228	0.70772	0.126592	0.15278	0.065382	0.025152	pCi	g	ARS1-B10-01790	0.70302	1						
ARS1-B10-01790-06	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	ASP-A-009	TH-228	0.932375	0.151145	0.18853	0.07212	0.027834	pCi	g	ARS1-B10-01790	0.6316	1						
ARS1-B10-01790-23	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	ASP-A-009	TH-228	0.717519	0.164269	0.185754	0.094194	0.034671	pCi	g	ARS1-B10-01790	0.42526	1						
ARS1-B10-01790-21	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	ASP-A-009	TH-228	0.499164	0.126251	0.139925	0.077277	0.028172	pCi	g	ARS1-B10-01790	0.50956	1						
ARS1-B10-01790-17	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	ASP-A-009	TH-228	0.764134	0.131181	0.16043	0.073629	0.029439	pCi	g	ARS1-B10-01790	0.70685	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01790-18	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	ASP-A-009	TH-228	0.718516	0.103767	0.13531	0.048296	0.019117	pCi	g	ARS1-B10-01790	1.00215	1						
ARS1-B10-01790-19	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	ASP-A-009	TH-228	0.752052	0.11102	0.143482	0.051685	0.020337	pCi	g	ARS1-B10-01790	0.90539	1						
ARS1-B10-01790-20	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	ASP-A-009	TH-228	0.635351	0.109759	0.133954	0.050626	0.018907	pCi	g	ARS1-B10-01790	0.79551	1						
ARS1-B10-01790-22	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	ASP-A-009	TH-228	0.655771	0.097182	0.125404	0.0455	0.017915	pCi	g	ARS1-B10-01790	1.00008	1						
ARS1-B10-01790-16	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	ASP-A-009	TH-228	0.760159	0.128989	0.158363	0.068062	0.026783	pCi	g	ARS1-B10-01790	0.73034	1						
ARS1-B10-01790-05	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	ASP-A-009	TH-230	0.808672	0.148585	0.177848	0.045354	0.013154	pCi	g	ARS1-B10-01790	0.51098	1						
ARS1-B10-01790-04	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	ASP-A-009	TH-230	0.948689	0.149464	0.188378	0.048568	0.016115	pCi	g	ARS1-B10-01790	0.64007	1						
ARS1-B10-01790-12	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	ASP-A-009	TH-230	0.74648	0.125749	0.154766	0.029523	0.007326	pCi	g	ARS1-B10-01790	0.71033	1						
ARS1-B10-01790-13	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	ASP-A-009	TH-230	0.868556	0.139184	0.174332	0.045937	0.015235	pCi	g	ARS1-B10-01790	0.65324	1						
ARS1-B10-01790-14	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	ASP-A-009	TH-230	1.318713	0.145425	0.215755	0.02241	0.00556	pCi	g	ARS1-B10-01790	0.87309	1						
ARS1-B10-01790-15	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	ASP-A-009	TH-230	0.621174	0.101065	0.125898	0.0116	0	pCi	g	ARS1-B10-01790	0.85428	1						
ARS1-B10-01790-07	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	ASP-A-009	TH-230	0.559459	0.10349	0.123621	0.039233	0.013016	pCi	g	ARS1-B10-01790	0.76738	1						
ARS1-B10-01790-08	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	ASP-A-009	TH-230	0.648786	0.127676	0.149833	0.044849	0.013707	pCi	g	ARS1-B10-01790	0.60347	1						
ARS1-B10-01790-09	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	ASP-A-009	TH-230	0.476994	0.090972	0.1077	0.035498	0.011775	pCi	g	ARS1-B10-01790	0.80907	1						
ARS1-B10-01790-10	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	ASP-A-009	TH-230	0.522963	0.117513	0.133433	0.043841	0.012762	pCi	g	ARS1-B10-01790	0.54512	1						
ARS1-B10-01790-11	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	ASP-A-009	TH-230	0.792352	0.129735	0.161251	0.05678	0.021181	pCi	g	ARS1-B10-01790	0.70302	1						
ARS1-B10-01790-06	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	ASP-A-009	TH-230	0.859642	0.13907	0.173594	0.037666	0.010967	pCi	g	ARS1-B10-01790	0.6316	1						
ARS1-B10-01790-23	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	ASP-A-009	TH-230	0.724949	0.158168	0.180814	0.064394	0.02031	pCi	g	ARS1-B10-01790	0.42526	1						
ARS1-B10-01790-21	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	ASP-A-009	TH-230	0.393002	0.108218	0.118183	0.059554	0.019764	pCi	g	ARS1-B10-01790	0.50956	1						
ARS1-B10-01790-17	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	ASP-A-009	TH-230	1.628279	0.180666	0.267149	0.028045	0.006967	pCi	g	ARS1-B10-01790	0.70685	1						
ARS1-B10-01790-18	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	ASP-A-009	TH-230	1.761262	0.155368	0.263537	0.026918	0.008646	pCi	g	ARS1-B10-01790	1.00215	1						
ARS1-B10-01790-19	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	ASP-A-009	TH-230	0.860133	0.114171	0.154408	0.033787	0.011627	pCi	g	ARS1-B10-01790	0.90539	1						
ARS1-B10-01790-20	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	ASP-A-009	TH-230	0.930971	0.127238	0.169852	0.018498	0.00312	pCi	g	ARS1-B10-01790	0.79551	1						
ARS1-B10-01790-22	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	ASP-A-009	TH-230	0.721451	0.097616	0.130889	0.023196	0.006973	pCi	g	ARS1-B10-01790	1.00008	1						
ARS1-B10-01790-16	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	ASP-A-009	TH-230	0.724265	0.119597	0.148209	0.027562	0.006848	pCi	g	ARS1-B10-01790	0.73034	1						
ARS1-B10-01790-05	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	ASP-A-009	TH-232	0.596623	0.127278	0.146284	0.037752	0.009373	pCi	g	ARS1-B10-01790	0.51098	1						
ARS1-B10-01790-04	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	ASP-A-009	TH-232	0.783773	0.135612	0.16542	0.044161	0.013928	pCi	g	ARS1-B10-01790	0.64007	1						
ARS1-B10-01790-12	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	ASP-A-009	TH-232	0.637786	0.116164	0.139413	0.029464	0.007311	pCi	g	ARS1-B10-01790	0.71033	1						
ARS1-B10-01790-13	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	ASP-A-009	TH-232	0.799066	0.13391	0.165102	0.050954	0.017759	pCi	g	ARS1-B10-01790	0.65324	1						
ARS1-B10-01790-14	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	ASP-A-009	TH-232	0.96617	0.124575	0.170747	0.026962	0.007847	pCi	g	ARS1-B10-01790	0.87309	1						
ARS1-B10-01790-15	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	ASP-A-009	TH-232	0.709967	0.108152	0.138057	0.022976	0.0057	pCi	g	ARS1-B10-01790	0.85428	1						
ARS1-B10-01790-07	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	ASP-A-009	TH-232	0.454293	0.093403	0.108346	0.039154	0.01299	pCi	g	ARS1-B10-01790	0.76738	1						
ARS1-B10-01790-08	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	ASP-A-009	TH-232	0.516269	0.113809	0.129792	0.042223	0.012412	pCi	g	ARS1-B10-01790	0.60347	1						
ARS1-B10-01790-09	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	ASP-A-009	TH-232	0.387751	0.081261	0.093806	0.023676	0.005876	pCi	g	ARS1-B10-01790	0.80907	1						
ARS1-B10-01790-10	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	ASP-A-009	TH-232	0.422841	0.106311	0.117957	0.049478	0.015599	pCi	g	ARS1-B10-01790	0.54512	1						
ARS1-B10-01790-11	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	ASP-A-009	TH-232	0.731805	0.124448	0.152676	0.054124	0.019867	pCi	g	ARS1-B10-01790	0.70302	1						
ARS1-B10-01790-06	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	ASP-A-009	TH-232	0.58097	0.115562	0.135222	0.050312	0.017306	pCi	g	ARS1-B10-01790	0.6316	1						
ARS1-B10-01790-23	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	ASP-A-009	TH-232	0.49119	0.130036	0.142946	0.056826	0.01655	pCi	g	ARS1-B10-01790	0.42526	1						
ARS1-B10-01790-21	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	ASP-A-009	TH-232	0.393376	0.107831	0.117847	0.056863	0.018438	pCi	g	ARS1-B10-01790	0.50956	1						
ARS1-B10-01790-17	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	ASP-A-009	TH-232	0.914126	0.135089	0.174515	0.014083	0	pCi	g	ARS1-B10-01790	0.70685	1						
ARS1-B10-01790-18	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	ASP-A-009	TH-232	0.615282	0.091772	0.118119	0.020631	0.005512	pCi	g	ARS1-B10-01790	1.00215	1						
ARS1-B10-01790-19	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	ASP-A-009	TH-232	0.421224	0.08036	0.095129	0.03308	0.011284	pCi	g	ARS1-B10-01790	0.90539	1						
ARS1-B10-01790-20	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	ASP-A-009	TH-232	0.669357	0.107735	0.134728	0.012233	0	pCi	g	ARS1-B10-01790	0.79551	1						
ARS1-B10-01790-22	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	ASP-A-009	TH-232	0.616074	0.089952	0.116772	0.018338	0.004553	pCi	g	ARS1-B10-01790	1.00008	1						
ARS1-B10-01790-16	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	ASP-A-009	TH-232	0.655469	0.113847	0.138697	0.030818	0.00849	pCi	g	ARS1-B10-01790	0.73034	1						
ARS1-B10-01803-09	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	ASP-A-009	TH-228	0.692122	0.121351	0.147388	0.065905	0.025935	pCi	g	ARS1-B10-01803	0.69064	1						
ARS1-B10-01803-10	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	ASP-A-009	TH-228	0.949073	0.159673	0.196603	0.088062	0.03521	pCi	g	ARS1-B10-01803	0.58189	1						
ARS1-B10-01803-11	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	ASP-A-009	TH-228	0.608351	0.090909	0.116921	0.04364	0.017274	pCi	g	ARS1-B10-01803	1.0495	1						
ARS1-B10-01803-12	TLS-SB-IA4-11 (29.0-30.0) 02261C	ARS1-10-00467-017	ASP-A-009	TH-228	0.676129	0.133689	0.156686	0.080548	0.031694	pCi	g	ARS1-B10-01803	0.6058	1						
ARS1-B10-01803-05	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	ASP-A-009	TH-228	0.83986	0.138781	0.17194	0.061441	0.022946	pCi	g	ARS1-B10-01803	0.65342	1						
ARS1-B10-01803-06	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	ASP-A-009	TH-228	0.565241	0.0932	0.115556	0.038716	0.014114	pCi	g	ARS1-B10-01803	1.01009	1						
ARS1-B10-01803-07	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	ASP-A-009	TH-228	0.700938	0.110428	0.13918	0.054637	0.021513	pCi	g	ARS1-B10-01803	0.82583	1						
ARS1-B10-01803-04	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	ASP-A-009	TH-228	0.77039	0.129661	0.159629	0.067907	0.02672	pCi	g	ARS1-B10-01803	0.72325	1						
ARS1-B10-01803-08	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	ASP-A-009	TH-228	1.008436	0.173832	0.212302	0.077087	0.028374	pCi	g	ARS1-B10-01803	0.47058	1						
ARS1-B10-01803-20	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	ASP-A-009	TH-228	0.532675	0.103603	0.121976	0.061549	0.024218	pCi	g	ARS1-B10-01803	0.75267	1						
ARS1-B10-01803-21	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	ASP-A-009	TH-228	0.573729	0.105549	0.126288	0.051567	0.019258	pCi	g	ARS1-B10-01803	0.75899	1						
ARS1-B10-01803-14	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	ASP-A-009	TH-228	0.621022	0.095148	0.121189	0.036886	0.013447	pCi	g	ARS1-B10-01803	0.93913	1						
ARS1-B10-01803-16	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	ASP-A-009	TH-228	0.560932	0.098172	0.119306	0.044152	0.016251	pCi	g	ARS1-B10-01803	0.81873	1						
ARS1-B10-01803-22	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	ASP-A-009	TH-228	1.02822	0.187208	0.2247	0.085287	0.031092	pCi	g	ARS1-B10-01803	0.42792	1						
ARS1-B10-01803-19	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	ASP-A-009	TH-228	0.789693	0.123301	0.155925	0.06157	0.024371	pCi	g	ARS1-B10-01803	0.79897	1						
ARS1-B10-01803-17	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	ASP-A-009	TH-228	0.532237	0.113985	0.130883	0.073473	0.028913	pCi	g	ARS1-B10-01803	0.56377	1						
ARS1-B10-01803-15	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	ASP-A-009	TH-228	0.542322	0.100617	0.120083	0.05751	0.022644	pCi	g	ARS1-B10-01803	0.82264	1						
ARS1-B10-01803-18	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	ASP-A-009	TH-228	0.830909	0.133009	0.166663	0.070228	0.028079	pCi	g	ARS1-B10-01803	0.70534	1						
ARS1-B10-01803-13	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	ASP-A-009	TH-228	0.490359	0.090263	0.10798	0.044121	0.016478	pCi	g	ARS1-B10-01803	0.8809	1						
ARS1-B10-01803-09	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	ASP-A-009	TH-230	0.908945	0.131736	0.17153	0.026675	0.006627	pCi	g	ARS1-B10-01803	0.69064	1						
ARS1-B10-01803-10	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	ASP-A-009	TH-230	0.737893	0.133204	0.160302	0.033525	0.008328	pCi	g	ARS1-B10-01803	0.58189	1						
ARS1-B10-01803-11	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	ASP-A-009	TH-230	0.561755	0.083722	0.107791	0.02431	0.007808	pCi	g	ARS1-B10-01803	1.0495	1						
ARS1-B10-01803-12	TLS-SB-IA4-11 (29.0-30.0) 02261C	ARS1-10-00467-017	ASP-A-009	TH-230	0.676424	0.127271	0.151266	0.052628	0.01811	pCi	g	ARS1-B10-01803	0.6058	1						
ARS1-B10-01803-05	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	ASP-A-009	TH-230	0.648505	0.117004	0.140831	0.022441	0.003785	pCi	g	ARS1-B10-01803	0.65342	1						
ARS1-B10-01803-06	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	ASP-A-009	TH-230	0.665307	0.097968	0.126741	0.029825	0.009898	pCi	g	ARS1-B10-01803	1.01009	1						
ARS1-B10-01803-07	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	ASP-A-009	TH-230	0.741366	0.108484	0.140703	0.027845	0.008371	pCi	g	ARS1-B10-01803	0.82583	1						
ARS1-B10-01803-04	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	ASP-A-009	TH-230	0.831522	0.128987	0.163516	0.044374	0.01527	pCi	g	ARS1-B10-01803	0.72325	1						
ARS1-B10-01803-08	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	ASP-A-009	TH-230	0.948422	0.162929	0.199212	0.052691	0.016619	pCi	g	ARS1-B10-01803	0.47058	1						
ARS1-B10-01803-20	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	ASP-A-009	TH-230	0.606406	0.105304	0.128298	0.040356	0.013888	pCi	g	ARS1-B10-01803	0.75267	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01803-21	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	ASP-A-009	TH-230	0.815376	0.120368	0.155564	0.018898	0.003188	pCi	g	ARS1-B10-01803	0.75899	1						
ARS1-B10-01803-14	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	ASP-A-009	TH-230	0.71572	0.099281	0.131679	0.028518	0.009464	pCi	g	ARS1-B10-01803	0.93913	1						
ARS1-B10-01803-16	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	ASP-A-009	TH-230	0.701849	0.10608	0.135825	0.030283	0.009551	pCi	g	ARS1-B10-01803	0.81873	1						
ARS1-B10-01803-22	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	ASP-A-009	TH-230	1.056735	0.184085	0.224052	0.065924	0.021878	pCi	g	ARS1-B10-01803	0.42792	1						
ARS1-B10-01803-19	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	ASP-A-009	TH-230	0.845636	0.122182	0.159292	0.03442	0.011056	pCi	g	ARS1-B10-01803	0.79897	1						
ARS1-B10-01803-17	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	ASP-A-009	TH-230	0.755508	0.127108	0.156506	0.02984	0.007414	pCi	g	ARS1-B10-01803	0.56377	1						
ARS1-B10-01803-15	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	ASP-A-009	TH-230	0.791616	0.115212	0.149758	0.029415	0.008843	pCi	g	ARS1-B10-01803	0.82264	1						
ARS1-B10-01803-18	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	ASP-A-009	TH-230	0.763065	0.121104	0.152222	0.02683	0.006665	pCi	g	ARS1-B10-01803	0.70534	1						
ARS1-B10-01803-13	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	ASP-A-009	TH-230	0.731369	0.105457	0.137603	0.016173	0.002728	pCi	g	ARS1-B10-01803	0.8809	1						
ARS1-B10-01803-09	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	ASP-A-009	TH-232	0.610243	0.108083	0.13085	0.029826	0.008216	pCi	g	ARS1-B10-01803	0.69064	1						
ARS1-B10-01803-10	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	ASP-A-009	TH-232	0.962587	0.151564	0.191066	0.016835	0	pCi	g	ARS1-B10-01803	0.58189	1						
ARS1-B10-01803-11	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	ASP-A-009	TH-232	0.407185	0.071015	0.0864	0.018633	0.004978	pCi	g	ARS1-B10-01803	1.0495	1						
ARS1-B10-01803-12	TLS-SB-IA4-11 (29.0-30.0) 02261C	ARS1-10-00467-017	ASP-A-009	TH-232	0.407863	0.099527	0.111066	0.051527	0.017576	pCi	g	ARS1-B10-01803	0.6058	1						
ARS1-B10-01803-05	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	ASP-A-009	TH-232	0.631786	0.115285	0.138279	0.01484	0	pCi	g	ARS1-B10-01803	0.65342	1						
ARS1-B10-01803-06	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	ASP-A-009	TH-232	0.446325	0.080335	0.096766	0.028477	0.009234	pCi	g	ARS1-B10-01803	1.01009	1						
ARS1-B10-01803-07	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	ASP-A-009	TH-232	0.577864	0.095498	0.118312	0.022013	0.005466	pCi	g	ARS1-B10-01803	0.82583	1						
ARS1-B10-01803-04	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	ASP-A-009	TH-232	0.379559	0.087979	0.09922	0.043446	0.01482	pCi	g	ARS1-B10-01803	0.72325	1						
ARS1-B10-01803-08	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	ASP-A-009	TH-232	0.695619	0.1393	0.162705	0.046499	0.013542	pCi	g	ARS1-B10-01803	0.47058	1						
ARS1-B10-01803-20	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	ASP-A-009	TH-232	0.335954	0.078978	0.088804	0.039512	0.013478	pCi	g	ARS1-B10-01803	0.75267	1						
ARS1-B10-01803-21	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	ASP-A-009	TH-232	0.687376	0.110352	0.138128	0.012497	0	pCi	g	ARS1-B10-01803	0.75899	1						
ARS1-B10-01803-14	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	ASP-A-009	TH-232	0.692558	0.097501	0.128502	0.027229	0.008829	pCi	g	ARS1-B10-01803	0.93913	1						
ARS1-B10-01803-16	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	ASP-A-009	TH-232	0.47808	0.087451	0.104816	0.026724	0.007783	pCi	g	ARS1-B10-01803	0.81873	1						
ARS1-B10-01803-22	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	ASP-A-009	TH-232	0.850265	0.165098	0.194468	0.062945	0.020411	pCi	g	ARS1-B10-01803	0.42792	1						
ARS1-B10-01803-19	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	ASP-A-009	TH-232	0.834786	0.120859	0.157437	0.026381	0.007049	pCi	g	ARS1-B10-01803	0.79897	1						
ARS1-B10-01803-17	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	ASP-A-009	TH-232	0.719728	0.124122	0.151568	0.033366	0.009191	pCi	g	ARS1-B10-01803	0.56377	1						
ARS1-B10-01803-15	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	ASP-A-009	TH-232	0.602167	0.1002	0.123841	0.023255	0.005774	pCi	g	ARS1-B10-01803	0.82264	1						
ARS1-B10-01803-18	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	ASP-A-009	TH-232	0.842759	0.12687	0.162698	0.013473	0	pCi	g	ARS1-B10-01803	0.70534	1						
ARS1-B10-01803-13	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	ASP-A-009	TH-232	0.604245	0.095713	0.120392	0.010695	0	pCi	g	ARS1-B10-01803	0.8809	1						
ARS1-B10-01830-07	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	ASP-A-009	TH-228	0.633995	0.101966	0.127548	0.048274	0.018627	pCi	g	ARS1-B10-01830	0.90267	1						
ARS1-B10-01830-11	TLS-SB-IA4-14 (13.0-14.0) 03021C	ARS1-10-00468-014	ASP-A-009	TH-228	0.74763	0.11546	0.146614	0.04805	0.017952	pCi	g	ARS1-B10-01830	0.85353	1						
ARS1-B10-01830-10	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	ASP-A-009	TH-228	0.459383	0.114484	0.127237	0.078623	0.030245	pCi	g	ARS1-B10-01830	0.57555	1						
ARS1-B10-01830-14	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	ASP-A-009	TH-228	0.719068	0.109179	0.139545	0.053597	0.021266	pCi	g	ARS1-B10-01830	0.83117	1						
ARS1-B10-01830-15	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	ASP-A-009	TH-228	0.628428	0.110348	0.13396	0.060008	0.023614	pCi	g	ARS1-B10-01830	0.78415	1						
ARS1-B10-01830-16	TLS-SB-IA4-18 (44.0-45.0) 03021C	ARS1-10-00468-019	ASP-A-009	TH-228	0.62373	0.113379	0.136153	0.066845	0.026727	pCi	g	ARS1-B10-01830	0.7421	1						
ARS1-B10-01830-13	TLS-SB-IA4-18 (9.0-10.0) 03021C	ARS1-10-00468-016	ASP-A-009	TH-228	0.814751	0.106513	0.145057	0.030036	0.01017	pCi	g	ARS1-B10-01830	0.93699	1						
ARS1-B10-01830-09	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	ASP-A-009	TH-228	0.876729	0.135035	0.171646	0.057712	0.021791	pCi	g	ARS1-B10-01830	0.74112	1						
ARS1-B10-01830-12	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	ASP-A-009	TH-228	0.973106	0.176003	0.211682	0.088751	0.033733	pCi	g	ARS1-B10-01830	0.46143	1						
ARS1-B10-01830-20	TLS-SB-IA4-8 (26.2-27.2) 03011C	ARS1-10-00469-004	ASP-A-009	TH-228	0.745166	0.135229	0.162474	0.06142	0.022391	pCi	g	ARS1-B10-01830	0.62052	1						
ARS1-B10-01830-21	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	ASP-A-009	TH-228	0.852699	0.136642	0.171149	0.068646	0.027029	pCi	g	ARS1-B10-01830	0.6832	1						
ARS1-B10-01830-22	TLS-SB-IA4-8 (32.0-33.0) 03011C	ARS1-10-00469-006	ASP-A-009	TH-228	0.833482	0.133827	0.167503	0.055548	0.020446	pCi	g	ARS1-B10-01830	0.70548	1						
ARS1-B10-01830-18	TLS-SB-IA4-8 (4.0-5.0) 03011C	ARS1-10-00469-002	ASP-A-009	TH-228	0.579451	0.093777	0.117042	0.04743	0.018663	pCi	g	ARS1-B10-01830	0.96168	1						
ARS1-B10-01830-19	TLS-SB-IA4-8 (4.0-5.0) 030110D	ARS1-10-00469-003	ASP-A-009	TH-228	0.647815	0.107646	0.133108	0.047904	0.01789	pCi	g	ARS1-B10-01830	0.75084	1						
ARS1-B10-01830-23	TLS-SS-IA4-7 (0.8-1.3) 03011C	ARS1-10-00469-007	ASP-A-009	TH-228	0.591504	0.117071	0.137172	0.063436	0.024035	pCi	g	ARS1-B10-01830	0.66695	1						
ARS1-B10-01830-04	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	ASP-A-009	TH-228	0.749165	0.186611	0.207417	0.139819	0.055579	pCi	g	ARS1-B10-01830	0.34802	1						
ARS1-B10-01830-05	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	ASP-A-009	TH-228	0.777113	0.150448	0.177358	0.084115	0.032463	pCi	g	ARS1-B10-01830	0.46044	1						
ARS1-B10-01830-06	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	ASP-A-009	TH-228	0.677582	0.133948	0.156998	0.064506	0.023315	pCi	g	ARS1-B10-01830	0.54892	1						
ARS1-B10-01830-07	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	ASP-A-009	TH-230	0.543025	0.090214	0.111561	0.026877	0.008214	pCi	g	ARS1-B10-01830	0.90267	1						
ARS1-B10-01830-11	TLS-SB-IA4-14 (13.0-14.0) 03021C	ARS1-10-00468-014	ASP-A-009	TH-230	0.748552	0.111426	0.143529	0.023141	0.005742	pCi	g	ARS1-B10-01830	0.85353	1						
ARS1-B10-01830-10	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	ASP-A-009	TH-230	0.76431	0.14064	0.168264	0.068524	0.025562	pCi	g	ARS1-B10-01830	0.57555	1						
ARS1-B10-01830-14	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	ASP-A-009	TH-230	0.90894	0.116964	0.160464	0.010618	0	pCi	g	ARS1-B10-01830	0.83117	1						
ARS1-B10-01830-15	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	ASP-A-009	TH-230	0.865787	0.122877	0.161394	0.024368	0.006054	pCi	g	ARS1-B10-01830	0.78415	1						
ARS1-B10-01830-16	TLS-SB-IA4-18 (44.0-45.0) 03021C	ARS1-10-00468-019	ASP-A-009	TH-230	0.789888	0.120174	0.153479	0.025532	0.006342	pCi	g	ARS1-B10-01830	0.7421	1						
ARS1-B10-01830-13	TLS-SB-IA4-18 (9.0-10.0) 03021C	ARS1-10-00468-016	ASP-A-009	TH-230	0.831995	0.104897	0.145309	0.018469	0.004582	pCi	g	ARS1-B10-01830	0.93699	1						
ARS1-B10-01830-09	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	ASP-A-009	TH-230	1.101177	0.145917	0.197495	0.032454	0.009448	pCi	g	ARS1-B10-01830	0.74112	1						
ARS1-B10-01830-12	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	ASP-A-009	TH-230	1.226967	0.190002	0.241022	0.060667	0.020121	pCi	g	ARS1-B10-01830	0.46143	1						
ARS1-B10-01830-20	TLS-SB-IA4-8 (26.2-27.2) 03011C	ARS1-10-00469-004	ASP-A-009	TH-230	0.818527	0.137288	0.169218	0.047405	0.015732	pCi	g	ARS1-B10-01830	0.62052	1						
ARS1-B10-01830-21	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	ASP-A-009	TH-230	1.165824	0.152503	0.207631	0.035051	0.010537	pCi	g	ARS1-B10-01830	0.6832	1						
ARS1-B10-01830-22	TLS-SB-IA4-8 (32.0-33.0) 03011C	ARS1-10-00469-006	ASP-A-009	TH-230	0.894526	0.134202	0.172333	0.038034	0.011996	pCi	g	ARS1-B10-01830	0.70548	1						
ARS1-B10-01830-18	TLS-SB-IA4-8 (4.0-5.0) 03011C	ARS1-10-00469-002	ASP-A-009	TH-230	0.680945	0.097503	0.127593	0.031053	0.010686	pCi	g	ARS1-B10-01830	0.96168	1						
ARS1-B10-01830-19	TLS-SB-IA4-8 (4.0-5.0) 030110D	ARS1-10-00469-003	ASP-A-009	TH-230	0.828051	0.11682	0.153827	0.01753	0.002957	pCi	g	ARS1-B10-01830	0.75084	1						
ARS1-B10-01830-23	TLS-SS-IA4-7 (0.8-1.3) 03011C	ARS1-10-00469-007	ASP-A-009	TH-230	0.894345	0.137447	0.174858	0.039881	0.012578	pCi	g	ARS1-B10-01830	0.66695	1						
ARS1-B10-01830-04	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	ASP-A-009	TH-230	0.670879	0.162053	0.181206	0.064516	0.018712	pCi	g	ARS1-B10-01830	0.34802	1						
ARS1-B10-01830-05	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	ASP-A-009	TH-230	0.823883	0.146326	0.176993	0.043431	0.012646	pCi	g	ARS1-B10-01830	0.46044	1						
ARS1-B10-01830-06	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	ASP-A-009	TH-230	0.799436	0.139812	0.16995	0.050227	0.016663	pCi	g	ARS1-B10-01830	0.54892	1						
ARS1-B10-01830-07	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	ASP-A-009	TH-232	0.648292	0.098292	0.1257	0.025304	0.007438	pCi	g	ARS1-B10-01830	0.90267	1						
ARS1-B10-01830-11	TLS-SB-IA4-14 (13.0-14.0) 03021C	ARS1-10-00468-014	ASP-A-009	TH-232	0.807277	0.115582	0.151257	0.023094	0.005731	pCi	g	ARS1-B10-01830	0.85353	1						
ARS1-B10-01830-10	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	ASP-A-009	TH-232	0.651746	0.129845	0.15187	0.065318	0.023977	pCi	g	ARS1-B10-01830	0.57555	1						
ARS1-B10-01830-14	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	ASP-A-009	TH-232	0.683897	0.101545	0.130933	0.02103	0.005217	pCi	g	ARS1-B10-01830	0.83117	1						
ARS1-B10-01830-15	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	ASP-A-009	TH-232	0.714698	0.111696	0.141199	0.027247	0.007506	pCi	g	ARS1-B10-01830	0.78415	1						
ARS1-B10-01830-16	TLS-SB-IA4-18 (44.0-45.0) 03021C	ARS1-10-00468-019	ASP-A-009	TH-232	0.833875	0.123107	0.159099	0.012821	0	pCi	g	ARS1-B10-01830	0.7421	1						
ARS1-B10-01830-13	TLS-SB-IA4-18 (9.0-10.0) 03021C	ARS1-10-00468-016	ASP-A-009	TH-232	0.759811	0.100303	0.135992	0.02222	0.006467	pCi	g	ARS1-B10-01830	0.93699	1						
ARS1-B10-01830-09	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	ASP-A-009	TH-232	1.004979	0.139523	0.184986	0.036627	0.011548	pCi	g	ARS1-B10-01830	0.74112	1						
ARS1-B10-01830-12	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	ASP-A-009	TH-232	1.008378	0.172973	0.211595	0.067292	0.023454	pCi	g	ARS1-B10-01830	0.46143	1						
ARS1-B10-01830-20	TLS-SB-IA4-8 (26.2-27.2) 03011C	ARS1-10-00469-004	ASP-A-009	TH-232	0.907218	0.144103	0.181075	0.045264	0.014677	pCi	g	ARS1-B10-01830	0.62052	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01830-21	TLS-SB-IA4-8 (29.6-30.6) 030110	ARS1-10-00469-005	ASP-A-009	TH-232	0.994635	0.140483	0.184895	0.027711	0.006881	pCi	g	ARS1-B10-01830	0.6832	1						
ARS1-B10-01830-22	TLS-SB-IA4-8 (32.0-33.0) 030110	ARS1-10-00469-006	ASP-A-009	TH-232	0.80473	0.126973	0.159942	0.033564	0.009775	pCi	g	ARS1-B10-01830	0.70548	1						
ARS1-B10-01830-18	TLS-SB-IA4-8 (4.0-5.0) 030110	ARS1-10-00469-002	ASP-A-009	TH-232	0.586425	0.090467	0.114924	0.030403	0.010371	pCi	g	ARS1-B10-01830	0.96168	1						
ARS1-B10-01830-19	TLS-SB-IA4-8 (4.0-5.0) 030110D	ARS1-10-00469-003	ASP-A-009	TH-232	0.834138	0.117078	0.154502	0.011592	0	pCi	g	ARS1-B10-01830	0.75084	1						
ARS1-B10-01830-23	TLS-SS-IA4-7 (0.8-1.3) 03011	ARS1-10-00469-007	ASP-A-009	TH-232	0.669227	0.118385	0.143377	0.02919	0.007248	pCi	g	ARS1-B10-01830	0.66695	1						
ARS1-B10-01830-04	TLS-SB-IA3-1(10.0-11.0)02151	ARS1-10-00273-004	ASP-A-009	TH-232	0.714557	0.16625	0.187343	0.053702	0.013333	pCi	g	ARS1-B10-01830	0.34802	1						
ARS1-B10-01830-05	TLS-SB-IA3-5(0.8-1.8)02151	ARS1-10-00273-007	ASP-A-009	TH-232	0.667274	0.132997	0.155539	0.058013	0.019955	pCi	g	ARS1-B10-01830	0.46044	1						
ARS1-B10-01830-06	TLS-SS-IA3-9(0.5-1.5)02151	ARS1-10-00273-016	ASP-A-009	TH-232	0.768983	0.137038	0.165581	0.050127	0.01663	pCi	g	ARS1-B10-01830	0.54892	1						
ARS1-B10-01839-10	TLS-SB-IA4-15 (1.2-2.2) 03011	ARS1-10-00469-014	ASP-A-009	TH-228	0.807759	0.139448	0.170225	0.067416	0.025624	pCi	g	ARS1-B10-01839	0.65595	1						
ARS1-B10-01839-13	TLS-SB-IA4-15 (13.0-14.0) 03011	ARS1-10-00469-017	ASP-A-009	TH-228	0.405856	0.133164	0.141911	0.119221	0.046915	pCi	g	ARS1-B10-01839	0.39019	1						
ARS1-B10-01839-11	TLS-SB-IA4-15 (2.2-3.2) 03011	ARS1-10-00469-015	ASP-A-009	TH-228	0.640845	0.121765	0.144311	0.049216	0.016665	pCi	g	ARS1-B10-01839	0.64046	1						
ARS1-B10-01839-12	TLS-SB-IA4-15 (2.2-3.2) 030110D	ARS1-10-00469-016	ASP-A-009	TH-228	0.374789	0.085292	0.096575	0.05919	0.023485	pCi	g	ARS1-B10-01839	0.68589	1						
ARS1-B10-01839-15	TLS-SB-IA4-19 (1.0-2.0) 03011	ARS1-10-00469-019	ASP-A-009	TH-228	0.626248	0.111113	0.134443	0.062111	0.024585	pCi	g	ARS1-B10-01839	0.76163	1						
ARS1-B10-01839-16	TLS-SB-IA4-19 (21.8-22.8) 03011	ARS1-10-00469-020	ASP-A-009	TH-228	0.730104	0.149739	0.173805	0.093061	0.036618	pCi	g	ARS1-B10-01839	0.4775	1						
ARS1-B10-01839-17	TLS-SB-IA4-19 (27.0-28.0) 03011	ARS1-10-00469-021	ASP-A-009	TH-228	0.591279	0.121367	0.140843	0.065442	0.02444	pCi	g	ARS1-B10-01839	0.58358	1						
ARS1-B10-01839-18	TLS-SB-IA4-19 (28.0-29.0) 03011	ARS1-10-00469-022	ASP-A-009	TH-228	0.530848	0.093858	0.113691	0.041613	0.01517	pCi	g	ARS1-B10-01839	0.77039	1						
ARS1-B10-01839-04	TLS-SB-IA4-7 (1.3-2.3) 03011	ARS1-10-00469-008	ASP-A-009	TH-228	0.641055	0.110223	0.134729	0.046641	0.016858	pCi	g	ARS1-B10-01839	0.6948	1						
ARS1-B10-01839-05	TLS-SB-IA4-7 (2.3-3.3) 03011	ARS1-10-00469-009	ASP-A-009	TH-228	0.751971	0.119963	0.150502	0.056377	0.021753	pCi	g	ARS1-B10-01839	0.83031	1						
ARS1-B10-01839-07	TLS-SB-IA4-7 (24.0-25.0) 03011	ARS1-10-00469-011	ASP-A-009	TH-228	0.726589	0.133129	0.159483	0.066711	0.025189	pCi	g	ARS1-B10-01839	0.64068	1						
ARS1-B10-01839-08	TLS-SB-IA4-7 (24.0-25.0) 030110D	ARS1-10-00469-012	ASP-A-009	TH-228	0.680581	0.127538	0.151762	0.068655	0.026411	pCi	g	ARS1-B10-01839	0.68011	1						
ARS1-B10-01839-06	TLS-SB-IA4-7 (3.3-4.3) 03011	ARS1-10-00469-010	ASP-A-009	TH-228	0.731396	0.150043	0.174146	0.084596	0.032149	pCi	g	ARS1-B10-01839	0.50454	1						
ARS1-B10-01839-09	TLS-SS-IA4-15 (0.7-1.2) 03011	ARS1-10-00469-013	ASP-A-009	TH-228	0.719736	0.129145	0.155709	0.061736	0.023065	pCi	g	ARS1-B10-01839	0.58225	1						
ARS1-B10-01839-14	TLS-SS-IA4-19 (0.5-1.0) 03011	ARS1-10-00469-018	ASP-A-009	TH-228	0.667187	0.096593	0.125827	0.046636	0.018646	pCi	g	ARS1-B10-01839	0.99562	1						
ARS1-B10-01839-20	TLS-SB-IA4-10 (2.0-3.0) 03031	ARS1-10-00473-002	ASP-A-009	TH-228	0.625732	0.118871	0.140889	0.057647	0.021219	pCi	g	ARS1-B10-01839	0.63414	1						
ARS1-B10-01839-21	TLS-SB-IA4-10 (3.0-4.0) 03031	ARS1-10-00473-003	ASP-A-009	TH-228	0.830953	0.128837	0.163355	0.055936	0.021193	pCi	g	ARS1-B10-01839	0.74467	1						
ARS1-B10-01839-22	TLS-SB-IA4-10 (4.0-5.0) 03031	ARS1-10-00473-004	ASP-A-009	TH-228	0.840464	0.159248	0.188887	0.101507	0.041118	pCi	g	ARS1-B10-01839	0.56108	1						
ARS1-B10-01839-23	TLS-SB-IA4-10 (7.8-8.8) 03031	ARS1-10-00473-005	ASP-A-009	TH-228	0.816057	0.178941	0.204322	0.121145	0.048156	pCi	g	ARS1-B10-01839	0.39387	1						
ARS1-B10-01839-19	TLS-SS-IA4-10 (0.6-1.1) 03031	ARS1-10-00473-001	ASP-A-009	TH-228	0.734557	0.122276	0.151107	0.063548	0.025022	pCi	g	ARS1-B10-01839	0.68863	1						
ARS1-B10-01839-10	TLS-SB-IA4-15 (1.2-2.2) 03011	ARS1-10-00469-014	ASP-A-009	TH-230	0.85868	0.13853	0.173093	0.04602	0.015263	pCi	g	ARS1-B10-01839	0.65595	1						
ARS1-B10-01839-13	TLS-SB-IA4-15 (13.0-14.0) 03011	ARS1-10-00469-017	ASP-A-009	TH-230	0.923033	0.178972	0.210893	0.048346	0.012011	pCi	g	ARS1-B10-01839	0.39019	1						
ARS1-B10-01839-11	TLS-SB-IA4-15 (2.2-3.2) 03011	ARS1-10-00469-015	ASP-A-009	TH-230	0.852596	0.135943	0.170584	0.03022	0.007498	pCi	g	ARS1-B10-01839	0.64046	1						
ARS1-B10-01839-12	TLS-SB-IA4-15 (2.2-3.2) 030110D	ARS1-10-00469-016	ASP-A-009	TH-230	0.791911	0.11465	0.149349	0.011709	0	pCi	g	ARS1-B10-01839	0.68589	1						
ARS1-B10-01839-15	TLS-SB-IA4-19 (1.0-2.0) 03011	ARS1-10-00469-019	ASP-A-009	TH-230	0.837688	0.122055	0.15858	0.034667	0.011135	pCi	g	ARS1-B10-01839	0.76163	1						
ARS1-B10-01839-16	TLS-SB-IA4-19 (21.8-22.8) 03011	ARS1-10-00469-020	ASP-A-009	TH-230	0.846101	0.152983	0.184014	0.060922	0.020965	pCi	g	ARS1-B10-01839	0.4775	1						
ARS1-B10-01839-17	TLS-SB-IA4-19 (27.0-28.0) 03011	ARS1-10-00469-021	ASP-A-009	TH-230	0.760035	0.130836	0.159863	0.023945	0.004039	pCi	g	ARS1-B10-01839	0.58358	1						
ARS1-B10-01839-18	TLS-SB-IA4-19 (28.0-29.0) 03011	ARS1-10-00469-022	ASP-A-009	TH-230	0.704265	0.104607	0.134862	0.032115	0.010658	pCi	g	ARS1-B10-01839	0.77039	1						
ARS1-B10-01839-04	TLS-SB-IA4-7 (1.3-2.3) 03011	ARS1-10-00469-008	ASP-A-009	TH-230	0.847523	0.122842	0.159945	0.036804	0.01221	pCi	g	ARS1-B10-01839	0.6948	1						
ARS1-B10-01839-05	TLS-SB-IA4-7 (2.3-3.3) 03011	ARS1-10-00469-009	ASP-A-009	TH-230	0.980716	0.131442	0.176993	0.031721	0.009695	pCi	g	ARS1-B10-01839	0.83031	1						
ARS1-B10-01839-07	TLS-SB-IA4-7 (24.0-25.0) 03011	ARS1-10-00469-011	ASP-A-009	TH-230	0.911293	0.142775	0.18032	0.037458	0.010904	pCi	g	ARS1-B10-01839	0.64068	1						
ARS1-B10-01839-08	TLS-SB-IA4-7 (24.0-25.0) 030110D	ARS1-10-00469-012	ASP-A-009	TH-230	0.862537	0.13876	0.173556	0.059745	0.022287	pCi	g	ARS1-B10-01839	0.68011	1						
ARS1-B10-01839-06	TLS-SB-IA4-7 (3.3-4.3) 03011	ARS1-10-00469-010	ASP-A-009	TH-230	0.945675	0.163077	0.199141	0.057784	0.019167	pCi	g	ARS1-B10-01839	0.50454	1						
ARS1-B10-01839-09	TLS-SS-IA4-15 (0.7-1.2) 03011	ARS1-10-00469-013	ASP-A-009	TH-230	0.888691	0.137543	0.174512	0.029691	0.007368	pCi	g	ARS1-B10-01839	0.58225	1						
ARS1-B10-01839-14	TLS-SS-IA4-19 (0.5-1.0) 03011	ARS1-10-00469-018	ASP-A-009	TH-230	0.741645	0.097149	0.132184	0.017789	0.004419	pCi	g	ARS1-B10-01839	0.99562	1						
ARS1-B10-01839-20	TLS-SB-IA4-10 (2.0-3.0) 03031	ARS1-10-00473-002	ASP-A-009	TH-230	0.875213	0.135387	0.17181	0.039535	0.012469	pCi	g	ARS1-B10-01839	0.63414	1						
ARS1-B10-01839-21	TLS-SB-IA4-10 (3.0-4.0) 03031	ARS1-10-00473-003	ASP-A-009	TH-230	1.123205	0.144499	0.198263	0.035221	0.011109	pCi	g	ARS1-B10-01839	0.74467	1						
ARS1-B10-01839-22	TLS-SB-IA4-10 (4.0-5.0) 03031	ARS1-10-00473-004	ASP-A-009	TH-230	1.039171	0.16648	0.208541	0.054979	0.018243	pCi	g	ARS1-B10-01839	0.56108	1						
ARS1-B10-01839-23	TLS-SB-IA4-10 (7.8-8.8) 03031	ARS1-10-00473-005	ASP-A-009	TH-230	0.971159	0.182191	0.216727	0.056754	0.016461	pCi	g	ARS1-B10-01839	0.39387	1						
ARS1-B10-01839-19	TLS-SS-IA4-10 (0.6-1.1) 03031	ARS1-10-00473-001	ASP-A-009	TH-230	0.818174	0.123155	0.157941	0.032501	0.00977	pCi	g	ARS1-B10-01839	0.68863	1						
ARS1-B10-01839-10	TLS-SB-IA4-15 (1.2-2.2) 03011	ARS1-10-00469-014	ASP-A-009	TH-232	0.772818	0.131869	0.161597	0.051045	0.017791	pCi	g	ARS1-B10-01839	0.65595	1						
ARS1-B10-01839-13	TLS-SB-IA4-15 (13.0-14.0) 03011	ARS1-10-00469-017	ASP-A-009	TH-232	0.624979	0.147719	0.165911	0.054058	0.014892	pCi	g	ARS1-B10-01839	0.39019	1						
ARS1-B10-01839-11	TLS-SB-IA4-15 (2.2-3.2) 03011	ARS1-10-00469-015	ASP-A-009	TH-232	0.63234	0.117383	0.14007	0.036359	0.010582	pCi	g	ARS1-B10-01839	0.64046	1						
ARS1-B10-01839-12	TLS-SB-IA4-15 (2.2-3.2) 030110D	ARS1-10-00469-016	ASP-A-009	TH-232	0.574432	0.097789	0.119928	0.023193	0.005754	pCi	g	ARS1-B10-01839	0.68589	1						
ARS1-B10-01839-15	TLS-SB-IA4-19 (1.0-2.0) 03011	ARS1-10-00469-019	ASP-A-009	TH-232	0.745934	0.114692	0.145884	0.026571	0.007099	pCi	g	ARS1-B10-01839	0.76163	1						
ARS1-B10-01839-16	TLS-SB-IA4-19 (21.8-22.8) 03011	ARS1-10-00469-020	ASP-A-009	TH-232	0.738654	0.142951	0.168537	0.059647	0.020346	pCi	g	ARS1-B10-01839	0.4775	1						
ARS1-B10-01839-17	TLS-SB-IA4-19 (27.0-28.0) 03011	ARS1-10-00469-021	ASP-A-009	TH-232	0.794679	0.133561	0.164509	0.015835	0	pCi	g	ARS1-B10-01839	0.58358	1						
ARS1-B10-01839-18	TLS-SB-IA4-19 (28.0-29.0) 03011	ARS1-10-00469-022	ASP-A-009	TH-232	0.789587	0.11047	0.145981	0.030664	0.009943	pCi	g	ARS1-B10-01839	0.77039	1						
ARS1-B10-01839-04	TLS-SB-IA4-7 (1.3-2.3) 03011	ARS1-10-00469-008	ASP-A-009	TH-232	0.786501	0.118281	0.151744	0.03673	0.012185	pCi	g	ARS1-B10-01839	0.6948	1						
ARS1-B10-01839-05	TLS-SB-IA4-7 (2.3-3.3) 03011	ARS1-10-00469-009	ASP-A-009	TH-232	0.80403	0.118896	0.153556	0.029864	0.008779	pCi	g	ARS1-B10-01839	0.83031	1						
ARS1-B10-01839-07	TLS-SB-IA4-7 (24.0-25.0) 03011	ARS1-10-00469-011	ASP-A-009	TH-232	0.852518	0.138298	0.172461	0.042274	0.013328	pCi	g	ARS1-B10-01839	0.64068	1						
ARS1-B10-01839-08	TLS-SB-IA4-7 (24.0-25.0) 030110D	ARS1-10-00469-012	ASP-A-009	TH-232	0.920221	0.142726	0.180942	0.05695	0.020905	pCi	g	ARS1-B10-01839	0.68011	1						
ARS1-B10-01839-06	TLS-SB-IA4-7 (3.3-4.3) 03011	ARS1-10-00469-010	ASP-A-009	TH-232	0.84431	0.152843	0.183777	0.038539	0.009564	pCi	g	ARS1-B10-01839	0.50454	1						
ARS1-B10-01839-09	TLS-SS-IA4-15 (0.7-1.2) 03011	ARS1-10-00469-013	ASP-A-009	TH-232	0.743079	0.125695	0.154482	0.029632	0.007353	pCi	g	ARS1-B10-01839	0.58225	1						
ARS1-B10-01839-14	TLS-SS-IA4-19 (0.5-1.0) 03011	ARS1-10-00469-018	ASP-A-009	TH-232	0.707093	0.094625	0.127504	0.008933	0	pCi	g	ARS1-B10-01839	0.99562	1						
ARS1-B10-01839-20	TLS-SB-IA4-10 (2.0-3.0) 03031	ARS1-10-00473-002	ASP-A-009	TH-232	0.683146	0.119387	0.145156	0.034889	0.010161	pCi	g	ARS1-B10-01839	0.63414	1						
ARS1-B10-01839-21	TLS-SB-IA4-10 (3.0-4.0) 03031	ARS1-10-00473-003	ASP-A-009	TH-232	0.92207	0.130466	0.171582	0.025779	0.006401	pCi	g	ARS1-B10-01839	0.74467	1						
ARS1-B10-01839-22	TLS-SB-IA4-10 (4.0-5.0) 03031	ARS1-10-00473-004	ASP-A-009	TH-232	1.014372	0.16399	0.20475	0.049991	0.015767	pCi	g	ARS1-B10-01839	0.56108	1						
ARS1-B10-01839-23	TLS-SB-IA4-10 (7.8-8.8) 03031	ARS1-10-00473-005	ASP-A-009	TH-232	1.039141	0.187698	0.22584	0.047241	0.011729	pCi	g	ARS1-B10-01839	0.39387	1						
ARS1-B10-01839-19	TLS-SS-IA4-10 (0.6-1.1) 03031	ARS1-10-00473-001	ASP-A-009	TH-232	0.741559	0.116853	0.147266	0.025694	0.00638	pCi	g	ARS1-B10-01839	0.68863	1						
ARS1-B10-01853-20	TLS-SB-IA4-1 (3.0-4.0) 03031	ARS1-10-00473-022	ASP-A-009	TH-228	0.51018	0.095435	0.113622	0.060188	0.024381	pCi	g	ARS1-B10-01853	0.83953	1						
ARS1-B10-01853-12	TLS-SB-IA4-2 (13.0-14.0) 03031	ARS1-10-00473-014	ASP-A-009	TH-228	0.695459	0.111503	0.139635	0.058955	0.023572	pCi	g	ARS1-B10-01853	0.85995	1						
ARS1-B10-01853-21	TLS-SB-IA4-1 (8.0-9.0) 03031	ARS1-10-00473-023	ASP-A-009	TH-228	0.548793	0.0987	0.118916	0.056583	0.022492	pCi	g	ARS1-B10-01853	0.87504	1						
ARS1-B10-01853-22	TLS-SB-IA4-1 (9.0-10.0) 03031	ARS1-10-00473-024	ASP-A-009	TH-228	0.460845	0.098093	0.112803	0.059536	0.022977	pCi	g	ARS1-B10-01853	0.75884	1						
ARS1-B10-01853-11	TLS-SB-IA4-2 (12.0-13.0) 03031	ARS1-10-00473-013	ASP-A-009	TH-228	0.717896	0.131845	0.157833	0.074565	0.029342	pCi	g	ARS1-B10-01853	0.60489	1						
ARS1-B10-01853-10	TLS-SB-IA4-2 (2.0-3.0) 03031	ARS1-10-00473-012	ASP-A-009	TH-228	0.285404	0.08493	0.091667	0.072354	0.028709	pCi	g	ARS1-B10-01853	0.68944	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01853-07	TLS-SB-IA4-3 (10.0-11.0) 030310	ARS1-10-00473-009	ASP-A-009	TH-228	0.707901	0.131788	0.157124	0.065149	0.02434	pCi	g	ARS1-B10-01853	0.5927	1						
ARS1-B10-01853-08	TLS-SB-IA4-3 (10.0-11.0) 030310D	ARS1-10-00473-010	ASP-A-009	TH-228	0.635299	0.111162	0.135102	0.054403	0.020678	pCi	g	ARS1-B10-01853	0.81005	1						
ARS1-B10-01853-05	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	ASP-A-009	TH-228	0.901439	0.183705	0.213582	0.101239	0.038226	pCi	g	ARS1-B10-01853	0.41315	1						
ARS1-B10-01853-06	TLS-SB-IA4-3 (7.0-8.0) 030310	ARS1-10-00473-008	ASP-A-009	TH-228	0.571691	0.101972	0.123176	0.052533	0.020209	pCi	g	ARS1-B10-01853	0.84396	1						
ARS1-B10-01853-14	TLS-SB-IA4-9 (1.8-2.8) 030310	ARS1-10-00473-016	ASP-A-009	TH-228	0.90443	0.165673	0.198485	0.093464	0.036776	pCi	g	ARS1-B10-01853	0.49447	1						
ARS1-B10-01853-18	TLS-SB-IA4-9 (17.3-18.3) 030310	ARS1-10-00473-020	ASP-A-009	TH-228	0.587943	0.153761	0.169387	0.098951	0.036422	pCi	g	ARS1-B10-01853	0.37498	1						
ARS1-B10-01853-15	TLS-SB-IA4-9 (2.8-3.8) 030310	ARS1-10-00473-017	ASP-A-009	TH-228	0.923754	0.146171	0.183931	0.062162	0.023215	pCi	g	ARS1-B10-01853	0.6379	1						
ARS1-B10-01853-16	TLS-SB-IA4-9 (9.0-10.0) 030310	ARS1-10-00473-018	ASP-A-009	TH-228	0.69557	0.195751	0.213039	0.131286	0.047861	pCi	g	ARS1-B10-01853	0.30435	1						
ARS1-B10-01853-17	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	ASP-A-009	TH-228	0.736378	0.110607	0.141967	0.052421	0.02064	pCi	g	ARS1-B10-01853	0.8512	1						
ARS1-B10-01853-19	TLS-SS-IA4-1 (1.2-1.7) 030310	ARS1-10-00473-021	ASP-A-009	TH-228	0.470265	0.0886	0.105263	0.045946	0.017408	pCi	g	ARS1-B10-01853	0.81136	1						
ARS1-B10-01853-09	TLS-SS-IA4-2 (1.5-2.0) 030310	ARS1-10-00473-011	ASP-A-009	TH-228	0.441516	0.084066	0.099572	0.034046	0.011528	pCi	g	ARS1-B10-01853	0.84059	1						
ARS1-B10-01853-04	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	ASP-A-009	TH-228	0.646463	0.114661	0.13875	0.056783	0.021579	pCi	g	ARS1-B10-01853	0.63401	1						
ARS1-B10-01853-23	TLS-SS-IA4-5 (0.7-1.2) 030310	ARS1-10-00473-025	ASP-A-009	TH-228	0.313681	0.077527	0.0863	0.04564	0.016496	pCi	g	ARS1-B10-01853	0.83791	1						
ARS1-B10-01853-13	TLS-SS-IA4-9 (0.2-0.8) 030310	ARS1-10-00473-015	ASP-A-009	TH-228	0.86198	0.119212	0.158319	0.053338	0.021113	pCi	g	ARS1-B10-01853	0.81892	1						
ARS1-B10-01853-20	TLS-SB-IA4-1 (3.0-4.0) 030310	ARS1-10-00473-022	ASP-A-009	TH-230	0.807087	0.112741	0.149082	0.032595	0.010816	pCi	g	ARS1-B10-01853	0.83953	1						
ARS1-B10-01853-12	TLS-SB-IA4-2 (13.0-14.0) 030310	ARS1-10-00473-014	ASP-A-009	TH-230	0.877724	0.118926	0.159364	0.02252	0.005594	pCi	g	ARS1-B10-01853	0.85995	1						
ARS1-B10-01853-21	TLS-SB-IA4-1 (8.0-9.0) 030310	ARS1-10-00473-023	ASP-A-009	TH-230	0.764934	0.110238	0.143873	0.026505	0.007687	pCi	g	ARS1-B10-01853	0.87504	1						
ARS1-B10-01853-22	TLS-SB-IA4-1 (9.0-10.0) 030310	ARS1-10-00473-024	ASP-A-009	TH-230	0.601566	0.105975	0.128517	0.031204	0.009086	pCi	g	ARS1-B10-01853	0.75884	1						
ARS1-B10-01853-11	TLS-SB-IA4-2 (12.0-13.0) 030310	ARS1-10-00473-013	ASP-A-009	TH-230	0.867898	0.137202	0.172706	0.030282	0.007524	pCi	g	ARS1-B10-01853	0.60489	1						
ARS1-B10-01853-10	TLS-SB-IA4-2 (2.0-3.0) 030310	ARS1-10-00473-012	ASP-A-009	TH-230	0.871959	0.133111	0.169778	0.014335	0	pCi	g	ARS1-B10-01853	0.68944	1						
ARS1-B10-01853-07	TLS-SB-IA4-3 (10.0-11.0) 030310	ARS1-10-00473-009	ASP-A-009	TH-230	0.828336	0.136545	0.169314	0.031377	0.007786	pCi	g	ARS1-B10-01853	0.5927	1						
ARS1-B10-01853-08	TLS-SB-IA4-3 (10.0-11.0) 030310D	ARS1-10-00473-010	ASP-A-009	TH-230	0.797864	0.119906	0.15387	0.037189	0.012334	pCi	g	ARS1-B10-01853	0.81005	1						
ARS1-B10-01853-05	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	ASP-A-009	TH-230	0.939978	0.179122	0.212111	0.056934	0.016574	pCi	g	ARS1-B10-01853	0.41315	1						
ARS1-B10-01853-06	TLS-SB-IA4-3 (7.0-8.0) 030310	ARS1-10-00473-008	ASP-A-009	TH-230	0.751127	0.11311	0.145035	0.045787	0.01708	pCi	g	ARS1-B10-01853	0.84396	1						
ARS1-B10-01853-14	TLS-SB-IA4-9 (1.8-2.8) 030310	ARS1-10-00473-016	ASP-A-009	TH-230	0.915212	0.15942	0.194036	0.061275	0.021086	pCi	g	ARS1-B10-01853	0.49447	1						
ARS1-B10-01853-18	TLS-SB-IA4-9 (17.3-18.3) 030310	ARS1-10-00473-020	ASP-A-009	TH-230	0.717597	0.161648	0.183445	0.067846	0.021399	pCi	g	ARS1-B10-01853	0.37498	1						
ARS1-B10-01853-15	TLS-SB-IA4-9 (2.8-3.8) 030310	ARS1-10-00473-017	ASP-A-009	TH-230	0.87823	0.137156	0.173431	0.022779	0.003842	pCi	g	ARS1-B10-01853	0.6379	1						
ARS1-B10-01853-16	TLS-SB-IA4-9 (9.0-10.0) 030310	ARS1-10-00473-018	ASP-A-009	TH-230	1.541806	0.276016	0.33303	0.101469	0.033674	pCi	g	ARS1-B10-01853	0.30435	1						
ARS1-B10-01853-17	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	ASP-A-009	TH-230	0.996678	0.123261	0.172348	0.026803	0.008057	pCi	g	ARS1-B10-01853	0.8512	1						
ARS1-B10-01853-19	TLS-SS-IA4-1 (1.2-1.7) 030310	ARS1-10-00473-021	ASP-A-009	TH-230	0.633185	0.09851	0.124742	0.028927	0.009124	pCi	g	ARS1-B10-01853	0.81136	1						
ARS1-B10-01853-09	TLS-SS-IA4-2 (1.5-2.0) 030310	ARS1-10-00473-011	ASP-A-009	TH-230	0.687537	0.101577	0.131236	0.020936	0.005194	pCi	g	ARS1-B10-01853	0.84059	1						
ARS1-B10-01853-04	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	ASP-A-009	TH-230	0.870164	0.127922	0.165604	0.038847	0.012886	pCi	g	ARS1-B10-01853	0.63401	1						
ARS1-B10-01853-23	TLS-SS-IA4-5 (0.7-1.2) 030310	ARS1-10-00473-025	ASP-A-009	TH-230	0.898037	0.125113	0.165631	0.036068	0.011966	pCi	g	ARS1-B10-01853	0.83791	1						
ARS1-B10-01853-13	TLS-SS-IA4-9 (0.2-0.8) 030310	ARS1-10-00473-015	ASP-A-009	TH-230	1.103348	0.129637	0.185979	0.029814	0.009576	pCi	g	ARS1-B10-01853	0.81892	1						
ARS1-B10-01853-20	TLS-SB-IA4-1 (3.0-4.0) 030310	ARS1-10-00473-022	ASP-A-009	TH-232	0.536787	0.091927	0.112514	0.029638	0.009348	pCi	g	ARS1-B10-01853	0.83953	1						
ARS1-B10-01853-21	TLS-SB-IA4-1 (8.0-9.0) 030310	ARS1-10-00473-023	ASP-A-009	TH-232	0.649831	0.101363	0.12823	0.022062	0.005477	pCi	g	ARS1-B10-01853	0.87504	1						
ARS1-B10-01853-22	TLS-SB-IA4-1 (9.0-10.0) 030310	ARS1-10-00473-024	ASP-A-009	TH-232	0.534652	0.100744	0.119686	0.041681	0.014337	pCi	g	ARS1-B10-01853	0.75884	1						
ARS1-B10-01853-11	TLS-SB-IA4-2 (12.0-13.0) 030310	ARS1-10-00473-013	ASP-A-009	TH-232	0.848876	0.13572	0.170135	0.03386	0.009328	pCi	g	ARS1-B10-01853	0.60489	1						
ARS1-B10-01853-12	TLS-SB-IA4-2 (13.0-14.0) 030310	ARS1-10-00473-014	ASP-A-009	TH-232	0.81159	0.114064	0.15044	0.011309	0	pCi	g	ARS1-B10-01853	0.85995	1						
ARS1-B10-01853-10	TLS-SB-IA4-2 (2.0-3.0) 030310	ARS1-10-00473-012	ASP-A-009	TH-232	0.560114	0.106909	0.126539	0.028393	0.007044	pCi	g	ARS1-B10-01853	0.68944	1						
ARS1-B10-01853-07	TLS-SB-IA4-3 (10.0-11.0) 030310	ARS1-10-00473-009	ASP-A-009	TH-232	0.724913	0.12765	0.154824	0.031314	0.00777	pCi	g	ARS1-B10-01853	0.5927	1						
ARS1-B10-01853-08	TLS-SB-IA4-3 (10.0-11.0) 030310D	ARS1-10-00473-010	ASP-A-009	TH-232	0.663911	0.109789	0.135986	0.04125	0.014377	pCi	g	ARS1-B10-01853	0.81005	1						
ARS1-B10-01853-05	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	ASP-A-009	TH-232	1.004203	0.185405	0.221597	0.064255	0.020258	pCi	g	ARS1-B10-01853	0.41315	1						
ARS1-B10-01853-06	TLS-SB-IA4-3 (7.0-8.0) 030310	ARS1-10-00473-008	ASP-A-009	TH-232	0.6692	0.106638	0.13384	0.043645	0.016021	pCi	g	ARS1-B10-01853	0.84396	1						
ARS1-B10-01853-14	TLS-SB-IA4-9 (1.8-2.8) 030310	ARS1-10-00473-016	ASP-A-009	TH-232	0.99722	0.165966	0.205112	0.059993	0.020464	pCi	g	ARS1-B10-01853	0.49447	1						
ARS1-B10-01853-18	TLS-SB-IA4-9 (17.3-18.3) 030310	ARS1-10-00473-020	ASP-A-009	TH-232	0.692677	0.158043	0.178847	0.059872	0.017437	pCi	g	ARS1-B10-01853	0.37498	1						
ARS1-B10-01853-15	TLS-SB-IA4-9 (2.8-3.8) 030310	ARS1-10-00473-017	ASP-A-009	TH-232	0.844063	0.134253	0.168614	0.015064	0	pCi	g	ARS1-B10-01853	0.6379	1						
ARS1-B10-01853-16	TLS-SB-IA4-9 (9.0-10.0) 030310	ARS1-10-00473-018	ASP-A-009	TH-232	0.776315	0.197168	0.218354	0.096884	0.031416	pCi	g	ARS1-B10-01853	0.30435	1						
ARS1-B10-01853-17	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	ASP-A-009	TH-232	0.904363	0.117108	0.160191	0.02119	0.005261	pCi	g	ARS1-B10-01853	0.8512	1						
ARS1-B10-01853-19	TLS-SS-IA4-1 (1.2-1.7) 030310	ARS1-10-00473-021	ASP-A-009	TH-232	0.579808	0.093806	0.117091	0.021172	0.005257	pCi	g	ARS1-B10-01853	0.81136	1						
ARS1-B10-01853-09	TLS-SS-IA4-2 (1.5-2.0) 030310	ARS1-10-00473-011	ASP-A-009	TH-232	0.533064	0.089613	0.110368	0.025189	0.007331	pCi	g	ARS1-B10-01853	0.84059	1						
ARS1-B10-01853-04	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	ASP-A-009	TH-232	0.700633	0.1141	0.142089	0.025909	0.00643	pCi	g	ARS1-B10-01853	0.63401	1						
ARS1-B10-01853-23	TLS-SS-IA4-5 (0.7-1.2) 030310	ARS1-10-00473-025	ASP-A-009	TH-232	0.412892	0.085392	0.098904	0.035996	0.011942	pCi	g	ARS1-B10-01853	0.83791	1						
ARS1-B10-01853-13	TLS-SS-IA4-9 (0.2-0.8) 030310	ARS1-10-00473-015	ASP-A-009	TH-232	0.964052	0.120806	0.167839	0.022851	0.006106	pCi	g	ARS1-B10-01853	0.81892	1						
ARS1-B10-01878-04	TLS-SS-IA5-6 (0.4-0.9) 022310	ARS1-10-00443-025	ASP-A-009	TH-228	0.643352	0.130212	0.151661	0.074996	0.02885	pCi	g	ARS1-B10-01878	0.54188	1						
ARS1-B10-01878-05	TLS-SB-IA4-5 (1.2-2.2) 030310	ARS1-10-00473-026	ASP-A-009	TH-228	0.682975	0.139363	0.161974	0.074822	0.027954	pCi	g	ARS1-B10-01878	0.58652	1						
ARS1-B10-01878-06	TLS-SB-IA4-5 (4.0-5.0) 030310	ARS1-10-00473-027	ASP-A-009	TH-228	0.489856	0.115052	0.129391	0.072933	0.027721	pCi	g	ARS1-B10-01878	0.60025	1						
ARS1-B10-01878-07	TLS-SB-IA4-5 (8.0-9.0) 030310	ARS1-10-00473-028	ASP-A-009	TH-228	0.72597	0.1395	0.164799	0.056989	0.019296	pCi	g	ARS1-B10-01878	0.55628	1						
ARS1-B10-01878-08	TLS-SB-IA4-5 (9.0-10.0) 030310	ARS1-10-00473-029	ASP-A-009	TH-228	0.884003	0.17598	0.205873	0.109377	0.043399	pCi	g	ARS1-B10-01878	0.4364	1						
ARS1-B10-01878-23	TLS-SB-IA3FL-5 (10.0-11.0)030410	ARS1-10-00492-015	ASP-A-009	TH-228	0.511449	0.127915	0.142068	0.088791	0.034261	pCi	g	ARS1-B10-01878	0.49399	1						
ARS1-B10-01878-20	TLS-SB-IA3FL-5 (2.4-3.4)030410	ARS1-10-00492-012	ASP-A-009	TH-228	0.699858	0.125026	0.150951	0.071262	0.028327	pCi	g	ARS1-B10-01878	0.70023	1						
ARS1-B10-01878-21	TLS-SB-IA3FL-5 (4.0-5.0)030410	ARS1-10-00492-013	ASP-A-009	TH-228	0.663586	0.120544	0.144787	0.063714	0.02459	pCi	g	ARS1-B10-01878	0.67929	1						
ARS1-B10-01878-22	TLS-SB-IA3FL-5 (6.0-7.0)030410	ARS1-10-00492-014	ASP-A-009	TH-228	0.636134	0.114598	0.137999	0.050648	0.018306	pCi	g	ARS1-B10-01878	0.63185	1						
ARS1-B10-01878-14	TLS-SB-IA3FL-6 (1.4-2.4)030410	ARS1-10-00492-006	ASP-A-009	TH-228	0.65216	0.11253	0.137388	0.051848	0.019363	pCi	g	ARS1-B10-01878	0.76758	1						
ARS1-B10-01878-17	TLS-SB-IA3FL-6 (13.0-14.0)030410	ARS1-10-00492-009	ASP-A-009	TH-228	0.6825	0.1122	0.139259	0.047609	0.017524	pCi	g	ARS1-B10-01878	0.78394	1						
ARS1-B10-01878-18	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	ASP-A-009	TH-228	0.583744	0.118231	0.137681	0.065386	0.024773	pCi	g	ARS1-B10-01878	0.62559	1						
ARS1-B10-01878-15	TLS-SB-IA3FL-6 (6.0-7.0)030410	ARS1-10-00492-007	ASP-A-009	TH-228	0.478644	0.106922	0.121568	0.058667	0.021387	pCi	g	ARS1-B10-01878	0.64694	1						
ARS1-B10-01878-16	TLS-SB-IA3FL-6 (8.4-9.4)030410	ARS1-10-00492-008	ASP-A-009	TH-228	0.437173	0.105521	0.11801	0.075116	0.029576	pCi	g	ARS1-B10-01878	0.63158	1						
ARS1-B10-01878-11	TLS-SB-IA4-6 (15.0-16.0)030410	ARS1-10-00492-003	ASP-A-009	TH-228	0.502524	0.136707	0.149591	0.111265	0.044487	pCi	g	ARS1-B10-01878	0.4432	1						
ARS1-B10-01878-12	TLS-SB-IA4-6 (17.0-18.0)030410	ARS1-10-00492-004	ASP-A-009	TH-228	0.487562	0.129329	0.142121	0.10054	0.039797	pCi	g	ARS1-B10-01878	0.47631	1						
ARS1-B10-01878-10	TLS-SB-IA4-6 (8.0-9.0)030410	ARS1-10-00492-002	ASP-A-009	TH-228	0.874826	0.153384	0.186295	0.083303	0.032781	pCi	g	ARS1-B10-01878	0.59382	1						
ARS1-B10-01878-24	TLS-SS-IA3FL-3 (1.0-1.5)030410	ARS1-10-00492-016	ASP-A-009	TH-228	0.683604	0.128402	0.152687	0.066953	0.025444	pCi	g	ARS1-B10-01878	0.61878	1						
ARS1-B10-01878-19	TLS-SS-IA3FL-5 (1.5-2.0)030410	ARS1-10-00492-011	ASP-A-009	TH-228	0.734206	0.146405	0.171197	0.097313	0.039419	pCi	g	ARS1-B10-01878	0.54268	1						
ARS1-B10-01878-13	TLS-SS-IA3FL-6 (0.6-1.1)030410	ARS1-10-00492-005	ASP-A-009	TH-228	0.325283	0.110199	0.117002	0.100862	0.039687	pCi	g	ARS1-B10-01878	0.46518	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01878-04	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	ASP-A-009	TH-230	0.824815	0.141713	0.173263	0.064844	0.024189	pCi	g	ARS1-B10-01878	0.54188	1						
ARS1-B10-01878-05	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	ASP-A-009	TH-230	1.108532	0.169218	0.215835	0.036032	0.008941	pCi	g	ARS1-B10-01878	0.58652	1						
ARS1-B10-01878-06	TLS-SB-IA4-5 (4.0-5.0) 03031C	ARS1-10-00473-027	ASP-A-009	TH-230	0.678308	0.128557	0.152472	0.049852	0.016534	pCi	g	ARS1-B10-01878	0.60025	1						
ARS1-B10-01878-07	TLS-SB-IA4-5 (8.0-9.0) 03031C	ARS1-10-00473-028	ASP-A-009	TH-230	0.961804	0.155484	0.194134	0.03504	0.008694	pCi	g	ARS1-B10-01878	0.55628	1						
ARS1-B10-01878-08	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	ASP-A-009	TH-230	1.18331	0.190642	0.238323	0.021667	0	pCi	g	ARS1-B10-01878	0.4364	1						
ARS1-B10-01878-23	TLS-SB-IA3FL-5 (10.0-11.0)03041C	ARS1-10-00492-015	ASP-A-009	TH-230	0.738642	0.143897	0.16934	0.050054	0.015298	pCi	g	ARS1-B10-01878	0.49399	1						
ARS1-B10-01878-20	TLS-SB-IA3FL-5 (2.4-3.4)03041C	ARS1-10-00492-012	ASP-A-009	TH-230	1.284391	0.160202	0.223073	0.033394	0.009686	pCi	g	ARS1-B10-01878	0.70023	1						
ARS1-B10-01878-21	TLS-SB-IA3FL-5 (4.0-5.0)03041C	ARS1-10-00492-013	ASP-A-009	TH-230	0.866553	0.13143	0.168055	0.033408	0.009728	pCi	g	ARS1-B10-01878	0.67929	1						
ARS1-B10-01878-22	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	ASP-A-009	TH-230	0.65899	0.1133	0.138494	0.040041	0.013284	pCi	g	ARS1-B10-01878	0.63185	1						
ARS1-B10-01878-14	TLS-SB-IA3FL-6 (1.4-2.4)03041C	ARS1-10-00492-006	ASP-A-009	TH-230	0.817471	0.120876	0.156116	0.019009	0.003207	pCi	g	ARS1-B10-01878	0.76758	1						
ARS1-B10-01878-17	TLS-SB-IA3FL-6 (13.0-14.0)03041C	ARS1-10-00492-009	ASP-A-009	TH-230	0.8605	0.121898	0.160235	0.03266	0.010301	pCi	g	ARS1-B10-01878	0.78394	1						
ARS1-B10-01878-18	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	ASP-A-009	TH-230	0.752521	0.128294	0.157262	0.041184	0.012989	pCi	g	ARS1-B10-01878	0.62559	1						
ARS1-B10-01878-15	TLS-SB-IA3FL-6 (6.0-7.0)03041C	ARS1-10-00492-007	ASP-A-009	TH-230	0.631331	0.118214	0.140701	0.045367	0.015056	pCi	g	ARS1-B10-01878	0.64694	1						
ARS1-B10-01878-16	TLS-SB-IA3FL-6 (8.4-9.4)03041C	ARS1-10-00492-008	ASP-A-009	TH-230	0.517182	0.106883	0.123819	0.038428	0.011552	pCi	g	ARS1-B10-01878	0.63158	1						
ARS1-B10-01878-11	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	ASP-A-009	TH-230	1.088668	0.18215	0.224702	0.042523	0.010563	pCi	g	ARS1-B10-01878	0.4432	1						
ARS1-B10-01878-12	TLS-SB-IA4-6 (17.0-18.0)03041C	ARS1-10-00492-004	ASP-A-009	TH-230	0.827223	0.155051	0.18449	0.056226	0.01806	pCi	g	ARS1-B10-01878	0.47631	1						
ARS1-B10-01878-10	TLS-SB-IA4-6 (8.0-9.0)03041C	ARS1-10-00492-002	ASP-A-009	TH-230	1.095768	0.162948	0.209979	0.033848	0.008409	pCi	g	ARS1-B10-01878	0.59382	1						
ARS1-B10-01878-24	TLS-SS-IA3FL-3 (1.0-1.5)03041C	ARS1-10-00492-016	ASP-A-009	TH-230	0.876121	0.139583	0.175202	0.045824	0.0152	pCi	g	ARS1-B10-01878	0.61878	1						
ARS1-B10-01878-19	TLS-SS-IA3FL-5 (1.5-2.0)03041C	ARS1-10-00492-011	ASP-A-009	TH-230	0.873995	0.14969	0.183208	0.052723	0.017494	pCi	g	ARS1-B10-01878	0.54268	1						
ARS1-B10-01878-13	TLS-SS-IA3FL-6 (0.6-1.1)03041C	ARS1-10-00492-005	ASP-A-009	TH-230	0.600016	0.135202	0.153422	0.066161	0.022767	pCi	g	ARS1-B10-01878	0.46518	1						
ARS1-B10-01878-04	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	ASP-A-009	TH-232	0.858526	0.143977	0.177471	0.06181	0.022689	pCi	g	ARS1-B10-01878	0.54188	1						
ARS1-B10-01878-05	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	ASP-A-009	TH-232	0.813268	0.144899	0.175091	0.03596	0.008923	pCi	g	ARS1-B10-01878	0.58652	1						
ARS1-B10-01878-06	TLS-SB-IA4-5 (4.0-5.0) 03031C	ARS1-10-00473-027	ASP-A-009	TH-232	0.575917	0.119174	0.138013	0.055296	0.019273	pCi	g	ARS1-B10-01878	0.60025	1						
ARS1-B10-01878-07	TLS-SB-IA4-5 (8.0-9.0) 03031C	ARS1-10-00473-028	ASP-A-009	TH-232	0.995237	0.15833	0.198839	0.042157	0.01227	pCi	g	ARS1-B10-01878	0.55628	1						
ARS1-B10-01878-08	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	ASP-A-009	TH-232	0.968954	0.172806	0.208749	0.042916	0.010646	pCi	g	ARS1-B10-01878	0.4364	1						
ARS1-B10-01878-23	TLS-SB-IA3FL-5 (10.0-11.0)03041C	ARS1-10-00492-015	ASP-A-009	TH-232	0.70977	0.140752	0.164833	0.047124	0.013852	pCi	g	ARS1-B10-01878	0.49399	1						
ARS1-B10-01878-20	TLS-SB-IA3FL-5 (2.4-3.4)03041C	ARS1-10-00492-012	ASP-A-009	TH-232	1.151504	0.151366	0.205622	0.027797	0.006901	pCi	g	ARS1-B10-01878	0.70023	1						
ARS1-B10-01878-21	TLS-SB-IA3FL-5 (4.0-5.0)03041C	ARS1-10-00492-013	ASP-A-009	TH-232	0.818645	0.128429	0.162122	0.044625	0.01535	pCi	g	ARS1-B10-01878	0.67929	1						
ARS1-B10-01878-22	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	ASP-A-009	TH-232	0.613524	0.109289	0.13207	0.039961	0.013257	pCi	g	ARS1-B10-01878	0.63185	1						
ARS1-B10-01878-14	TLS-SB-IA3FL-6 (1.4-2.4)03041C	ARS1-10-00492-006	ASP-A-009	TH-232	0.802481	0.119583	0.15397	0.012571	0	pCi	g	ARS1-B10-01878	0.76758	1						
ARS1-B10-01878-17	TLS-SB-IA3FL-6 (13.0-14.0)03041C	ARS1-10-00492-009	ASP-A-009	TH-232	0.829618	0.119383	0.155904	0.028822	0.008394	pCi	g	ARS1-B10-01878	0.78394	1						
ARS1-B10-01878-18	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	ASP-A-009	TH-232	0.821995	0.133272	0.166226	0.030143	0.007484	pCi	g	ARS1-B10-01878	0.62559	1						
ARS1-B10-01878-15	TLS-SB-IA3FL-6 (6.0-7.0)03041C	ARS1-10-00492-007	ASP-A-009	TH-232	0.631532	0.11794	0.140484	0.043317	0.014046	pCi	g	ARS1-B10-01878	0.64694	1						
ARS1-B10-01878-16	TLS-SB-IA3FL-6 (8.4-9.4)03041C	ARS1-10-00492-008	ASP-A-009	TH-232	0.607796	0.11514	0.136577	0.03038	0.007543	pCi	g	ARS1-B10-01878	0.63158	1						
ARS1-B10-01878-11	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	ASP-A-009	TH-232	0.7526	0.150934	0.176224	0.021354	0	pCi	g	ARS1-B10-01878	0.4432	1						
ARS1-B10-01878-12	TLS-SB-IA4-6 (17.0-18.0)03041C	ARS1-10-00492-004	ASP-A-009	TH-232	0.722202	0.143984	0.168375	0.043095	0.011514	pCi	g	ARS1-B10-01878	0.47631	1						
ARS1-B10-01878-10	TLS-SB-IA4-6 (8.0-9.0)03041C	ARS1-10-00492-002	ASP-A-009	TH-232	1.093068	0.162752	0.209621	0.037847	0.010426	pCi	g	ARS1-B10-01878	0.59382	1						
ARS1-B10-01878-24	TLS-SS-IA3FL-3 (1.0-1.5)03041C	ARS1-10-00492-016	ASP-A-009	TH-232	0.699033	0.123833	0.149908	0.030562	0.007585	pCi	g	ARS1-B10-01878	0.61878	1						
ARS1-B10-01878-19	TLS-SS-IA3FL-5 (1.5-2.0)03041C	ARS1-10-00492-011	ASP-A-009	TH-232	0.885259	0.150119	0.184345	0.047939	0.01512	pCi	g	ARS1-B10-01878	0.54268	1						
ARS1-B10-01878-13	TLS-SS-IA3FL-6 (0.6-1.1)03041C	ARS1-10-00492-005	ASP-A-009	TH-232	0.427253	0.114719	0.125805	0.064776	0.022096	pCi	g	ARS1-B10-01878	0.46518	1						
ARS1-B10-01887-18	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	ASP-A-009	TH-228	0.610736	0.109711	0.132231	0.057415	0.022158	pCi	g	ARS1-B10-01887	0.74276	1						
ARS1-B10-01887-22	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	ASP-A-009	TH-228	0.369602	0.080031	0.091654	0.052061	0.020487	pCi	g	ARS1-B10-01887	0.76167	1						
ARS1-B10-01887-23	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	ASP-A-009	TH-228	0.41436	0.085148	0.098784	0.055641	0.022247	pCi	g	ARS1-B10-01887	0.89864	1						
ARS1-B10-01887-20	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	ASP-A-009	TH-228	0.656354	0.114186	0.139037	0.058034	0.022393	pCi	g	ARS1-B10-01887	0.78724	1						
ARS1-B10-01887-21	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	ASP-A-009	TH-228	0.631134	0.106602	0.131082	0.0505	0.019191	pCi	g	ARS1-B10-01887	0.75158	1						
ARS1-B10-01887-15	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	ASP-A-009	TH-228	0.614459	0.123271	0.143912	0.067601	0.025613	pCi	g	ARS1-B10-01887	0.56578	1						
ARS1-B10-01887-16	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	ASP-A-009	TH-228	0.648636	0.113868	0.138245	0.068089	0.027581	pCi	g	ARS1-B10-01887	0.81988	1						
ARS1-B10-01887-05	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	ASP-A-009	TH-228	0.614804	0.115685	0.137493	0.046329	0.015687	pCi	g	ARS1-B10-01887	0.68528	1						
ARS1-B10-01887-06	TLS-SB-IA3FL-3 (5.0-6.0)03041C	ARS1-10-00492-018	ASP-A-009	TH-228	0.630058	0.106393	0.130836	0.057399	0.022775	pCi	g	ARS1-B10-01887	0.78085	1						
ARS1-B10-01887-07	TLS-SB-IA3FL-3 (9.0-10.0)03041C	ARS1-10-00492-019	ASP-A-009	TH-228	0.500008	0.103988	0.120272	0.065405	0.025738	pCi	g	ARS1-B10-01887	0.73567	1						
ARS1-B10-01887-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	ASP-A-009	TH-228	0.657624	0.121354	0.145065	0.0689	0.027111	pCi	g	ARS1-B10-01887	0.65767	1						
ARS1-B10-01887-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	ASP-A-009	TH-228	0.553648	0.105356	0.12481	0.061551	0.024235	pCi	g	ARS1-B10-01887	0.72933	1						
ARS1-B10-01887-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	ASP-A-009	TH-228	0.547364	0.090668	0.112237	0.040231	0.015024	pCi	g	ARS1-B10-01887	1.01631	1						
ARS1-B10-01887-12	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	ASP-A-009	TH-228	0.702129	0.116598	0.144209	0.048759	0.017775	pCi	g	ARS1-B10-01887	0.79012	1						
ARS1-B10-01887-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	ASP-A-009	TH-228	0.642538	0.115066	0.13882	0.050575	0.01828	pCi	g	ARS1-B10-01887	0.69908	1						
ARS1-B10-01887-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	ASP-A-009	TH-228	0.904461	0.15601	0.190496	0.085086	0.03368	pCi	g	ARS1-B10-01887	0.58437	1						
ARS1-B10-01887-04	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	ASP-A-009	TH-228	0.621293	0.131836	0.151721	0.07659	0.029111	pCi	g	ARS1-B10-01887	0.58232	1						
ARS1-B10-01887-18	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	ASP-A-009	TH-230	0.766179	0.117314	0.149457	0.0301	0.008764	pCi	g	ARS1-B10-01887	0.74276	1						
ARS1-B10-01887-22	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	ASP-A-009	TH-230	0.456727	0.083216	0.09986	0.021139	0.005252	pCi	g	ARS1-B10-01887	0.76167	1						
ARS1-B10-01887-23	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	ASP-A-009	TH-230	0.413951	0.079461	0.093899	0.021251	0.005279	pCi	g	ARS1-B10-01887	0.89864	1						
ARS1-B10-01887-20	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	ASP-A-009	TH-230	0.869697	0.125771	0.163911	0.032709	0.009997	pCi	g	ARS1-B10-01887	0.78724	1						
ARS1-B10-01887-21	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	ASP-A-009	TH-230	0.593742	0.099875	0.122982	0.034553	0.011462	pCi	g	ARS1-B10-01887	0.75158	1						
ARS1-B10-01887-15	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	ASP-A-009	TH-230	0.618668	0.118492	0.140112	0.042572	0.013427	pCi	g	ARS1-B10-01887	0.56578	1						
ARS1-B10-01887-16	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	ASP-A-009	TH-230	0.723772	0.113763	0.143506	0.036884	0.012238	pCi	g	ARS1-B10-01887	0.81988	1						
ARS1-B10-01887-05	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	ASP-A-009	TH-230	0.838736	0.130918	0.165576	0.028496	0.00707	pCi	g	ARS1-B10-01887	0.68528	1						
ARS1-B10-01887-06	TLS-SB-IA3FL-3 (5.0-6.0)03041C	ARS1-10-00492-018	ASP-A-009	TH-230	0.776549	0.111898	0.146047	0.011374	0	pCi	g	ARS1-B10-01887	0.78085	1						
ARS1-B10-01887-07	TLS-SB-IA3FL-3 (9.0-10.0)03041C	ARS1-10-00492-019	ASP-A-009	TH-230	0.787038	0.12238	0.155	0.026572	0.006602	pCi	g	ARS1-B10-01887	0.73567	1						
ARS1-B10-01887-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	ASP-A-009	TH-230	0.81526	0.128932	0.162272	0.045186	0.01555	pCi	g	ARS1-B10-01887	0.65767	1						
ARS1-B10-01887-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	ASP-A-009	TH-230	0.880977	0.125718	0.164748	0.031482	0.009464	pCi	g	ARS1-B10-01887	0.72933	1						
ARS1-B10-01887-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	ASP-A-009	TH-230	0.663017	0.095879	0.124956	0.014747	0.002488	pCi	g	ARS1-B10-01887	1.01631	1						
ARS1-B10-01887-12	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	ASP-A-009	TH-230	0.587676	0.103839	0.125806	0.037697	0.01251	pCi	g	ARS1-B10-01887	0.79012	1						
ARS1-B10-01887-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	ASP-A-009	TH-230	0.90432	0.132265	0.17158	0.039976	0.013262	pCi	g	ARS1-B10-01887	0.69908	1						
ARS1-B10-01887-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	ASP-A-009	TH-230	1.0472	0.15996	0.203976	0.047576	0.015281	pCi	g	ARS1-B10-01887	0.58437	1						
ARS1-B10-01887-04	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	ASP-A-009	TH-230	0.852316	0.147403	0.179831	0.052361	0.017366	pCi	g	ARS1-B10-01887	0.58232	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01887-18	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	ASP-A-009	TH-232	0.606879	0.105189	0.128236	0.040206	0.01383	pCi	g	ARS1-B10-01887	0.74276	1						
ARS1-B10-01887-22	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	ASP-A-009	TH-232	0.512119	0.088123	0.107687	0.023637	0.006511	pCi	g	ARS1-B10-01887	0.76167	1						
ARS1-B10-01887-23	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	ASP-A-009	TH-232	0.399732	0.077761	0.091547	0.010671	0	pCi	g	ARS1-B10-01887	0.89864	1						
ARS1-B10-01887-20	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	ASP-A-009	TH-232	0.833307	0.122909	0.158902	0.030794	0.009052	pCi	g	ARS1-B10-01887	0.78724	1						
ARS1-B10-01887-21	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	ASP-A-009	TH-232	0.520388	0.092782	0.11209	0.023045	0.005719	pCi	g	ARS1-B10-01887	0.75158	1						
ARS1-B10-01887-15	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	ASP-A-009	TH-232	0.674599	0.122823	0.147421	0.03116	0.007737	pCi	g	ARS1-B10-01887	0.56578	1						
ARS1-B10-01887-16	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	ASP-A-009	TH-232	0.602564	0.103611	0.126645	0.033537	0.010578	pCi	g	ARS1-B10-01887	0.81988	1						
ARS1-B10-01887-05	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	ASP-A-009	TH-232	0.861469	0.132806	0.168754	0.034284	0.009978	pCi	g	ARS1-B10-01887	0.68528	1						
ARS1-B10-01887-06	TLS-SB-IA3FL-3 (5.0-6.0)03041C	ARS1-10-00492-018	ASP-A-009	TH-232	0.720437	0.107877	0.138633	0.02253	0.005589	pCi	g	ARS1-B10-01887	0.78085	1						
ARS1-B10-01887-07	TLS-SB-IA3FL-3 (9.0-10.0)03041C	ARS1-10-00492-019	ASP-A-009	TH-232	0.730092	0.117912	0.147273	0.029711	0.008185	pCi	g	ARS1-B10-01887	0.73567	1						
ARS1-B10-01887-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	ASP-A-009	TH-232	0.672926	0.117194	0.14265	0.044241	0.015091	pCi	g	ARS1-B10-01887	0.65767	1						
ARS1-B10-01887-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	ASP-A-009	TH-232	0.705248	0.112159	0.140872	0.024888	0.00618	pCi	g	ARS1-B10-01887	0.72933	1						
ARS1-B10-01887-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	ASP-A-009	TH-232	0.606888	0.091595	0.117344	0.009752	0	pCi	g	ARS1-B10-01887	1.01631	1						
ARS1-B10-01887-12	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	ASP-A-009	TH-232	0.645554	0.108492	0.133634	0.035994	0.011671	pCi	g	ARS1-B10-01887	0.79012	1						
ARS1-B10-01887-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	ASP-A-009	TH-232	0.720549	0.118157	0.146783	0.039896	0.013236	pCi	g	ARS1-B10-01887	0.69908	1						
ARS1-B10-01887-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	ASP-A-009	TH-232	1.029944	0.157876	0.201047	0.036465	0.009743	pCi	g	ARS1-B10-01887	0.58437	1						
ARS1-B10-01887-04	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	ASP-A-009	TH-232	0.774756	0.141083	0.169329	0.058079	0.020243	pCi	g	ARS1-B10-01887	0.58232	1						
ARS1-B10-01903-04	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	ASP-A-009	TH-228	0.286709	0.112445	0.117663	0.098288	0.035831	pCi	g	ARS1-B10-01903	0.40296	1						
ARS1-B10-01903-05	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	ASP-A-009	TH-228	1.268807	0.205063	0.25606	0.103807	0.040873	pCi	g	ARS1-B10-01903	0.42953	1						
ARS1-B10-01903-23	TLS-SB-IA3FL-1 (5.0-6.0)03051C	ARS1-10-00493-018	ASP-A-009	TH-228	0.58096	0.111252	0.131557	0.065218	0.025662	pCi	g	ARS1-B10-01903	0.67636	1						
ARS1-B10-01903-12	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	ASP-A-009	TH-228	0.695042	0.209679	0.22588	0.168718	0.065101	pCi	g	ARS1-B10-01903	0.27728	1						
ARS1-B10-01903-13	TLS-SB-IA3FL-11 (3.0-4.0)03051C	ARS1-10-00493-008	ASP-A-009	TH-228	0.681015	0.113565	0.140256	0.053174	0.020208	pCi	g	ARS1-B10-01903	0.75172	1						
ARS1-B10-01903-14	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	ASP-A-009	TH-228	0.682729	0.113178	0.140064	0.05177	0.019547	pCi	g	ARS1-B10-01903	0.83961	1						
ARS1-B10-01903-15	TLS-SB-IA3FL-11 (7.0-8.0)03051C	ARS1-10-00493-010	ASP-A-009	TH-228	0.622239	0.114649	0.137114	0.060798	0.023388	pCi	g	ARS1-B10-01903	0.66803	1						
ARS1-B10-01903-07	TLS-SB-IA3FL-7 (1.5-2.5)03051C	ARS1-10-00493-002	ASP-A-009	TH-228	0.757055	0.137689	0.165318	0.069172	0.026208	pCi	g	ARS1-B10-01903	0.57921	1						
ARS1-B10-01903-08	TLS-SB-IA3FL-7 (3.2-4.2)03051C	ARS1-10-00493-003	ASP-A-009	TH-228	0.598588	0.108959	0.13079	0.067172	0.02721	pCi	g	ARS1-B10-01903	0.78243	1						
ARS1-B10-01903-09	TLS-SB-IA3FL-7 (5.5-6.5)03051C	ARS1-10-00493-004	ASP-A-009	TH-228	0.596975	0.11104	0.132422	0.065525	0.026047	pCi	g	ARS1-B10-01903	0.77452	1						
ARS1-B10-01903-10	TLS-SB-IA3FL-7 (6.5-7.5)03051C	ARS1-10-00493-005	ASP-A-009	TH-228	0.653629	0.125255	0.148086	0.069405	0.026786	pCi	g	ARS1-B10-01903	0.63271	1						
ARS1-B10-01903-20	TLS-SB-IA3FL-9 (10.0-11.0)03051C	ARS1-10-00493-015	ASP-A-009	TH-228	0.832051	0.166594	0.194593	0.101474	0.039931	pCi	g	ARS1-B10-01903	0.45801	1						
ARS1-B10-01903-17	TLS-SB-IA3FL-9 (2.0-3.0)03051C	ARS1-10-00493-012	ASP-A-009	TH-228	0.659482	0.179566	0.196461	0.12867	0.048905	pCi	g	ARS1-B10-01903	0.34649	1						
ARS1-B10-01903-18	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	ASP-A-009	TH-228	0.644137	0.106051	0.131558	0.037385	0.012659	pCi	g	ARS1-B10-01903	0.8228	1						
ARS1-B10-01903-19	TLS-SB-IA3FL-9 (8.3-9.3)03051C	ARS1-10-00493-014	ASP-A-009	TH-228	0.639292	0.122336	0.144692	0.073537	0.029178	pCi	g	ARS1-B10-01903	0.66215	1						
ARS1-B10-01903-21	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	ASP-A-009	TH-228	0.654599	0.14218	0.162709	0.097204	0.038865	pCi	g	ARS1-B10-01903	0.55037	1						
ARS1-B10-01903-11	TLS-SS-IA3FL-11 (0.5-1.0)03051C	ARS1-10-00493-006	ASP-A-009	TH-228	0.879096	0.194404	0.221544	0.103664	0.037468	pCi	g	ARS1-B10-01903	0.37189	1						
ARS1-B10-01903-06	TLS-SS-IA3FL-7 (1.0-1.5)03051C	ARS1-10-00493-001	ASP-A-009	TH-228	0.780429	0.122778	0.154827	0.049997	0.018403	pCi	g	ARS1-B10-01903	0.78316	1						
ARS1-B10-01903-16	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	ASP-A-009	TH-228	0.741052	0.189885	0.209948	0.124254	0.046421	pCi	g	ARS1-B10-01903	0.34521	1						
ARS1-B10-01903-04	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	ASP-A-009	TH-230	0.347626	0.115641	0.123037	0.075345	0.025004	pCi	g	ARS1-B10-01903	0.40296	1						
ARS1-B10-01903-05	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	ASP-A-009	TH-230	1.677638	0.224214	0.302297	0.052635	0.015823	pCi	g	ARS1-B10-01903	0.42953	1						
ARS1-B10-01903-23	TLS-SB-IA3FL-1 (5.0-6.0)03051C	ARS1-10-00493-018	ASP-A-009	TH-230	0.610947	0.108875	0.131552	0.042764	0.014716	pCi	g	ARS1-B10-01903	0.67636	1						
ARS1-B10-01903-12	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	ASP-A-009	TH-230	1.035565	0.235538	0.266726	0.095114	0.029069	pCi	g	ARS1-B10-01903	0.27728	1						
ARS1-B10-01903-13	TLS-SB-IA3FL-11 (3.0-4.0)03051C	ARS1-10-00493-008	ASP-A-009	TH-230	0.917582	0.127039	0.168634	0.036391	0.012071	pCi	g	ARS1-B10-01903	0.75172	1						
ARS1-B10-01903-14	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	ASP-A-009	TH-230	0.881106	0.123692	0.163217	0.029124	0.008478	pCi	g	ARS1-B10-01903	0.83961	1						
ARS1-B10-01903-15	TLS-SB-IA3FL-11 (7.0-8.0)03051C	ARS1-10-00493-010	ASP-A-009	TH-230	0.733893	0.12066	0.149754	0.05301	0.019775	pCi	g	ARS1-B10-01903	0.66803	1						
ARS1-B10-01903-07	TLS-SB-IA3FL-7 (1.5-2.5)03051C	ARS1-10-00493-002	ASP-A-009	TH-230	1.003839	0.152177	0.194621	0.043568	0.013741	pCi	g	ARS1-B10-01903	0.57921	1						
ARS1-B10-01903-08	TLS-SB-IA3FL-7 (3.2-4.2)03051C	ARS1-10-00493-003	ASP-A-009	TH-230	0.779033	0.117157	0.150302	0.036392	0.012075	pCi	g	ARS1-B10-01903	0.78243	1						
ARS1-B10-01903-09	TLS-SB-IA3FL-7 (5.5-6.5)03051C	ARS1-10-00493-004	ASP-A-009	TH-230	0.788786	0.12054	0.153682	0.030706	0.008906	pCi	g	ARS1-B10-01903	0.77452	1						
ARS1-B10-01903-10	TLS-SB-IA3FL-7 (6.5-7.5)03051C	ARS1-10-00493-005	ASP-A-009	TH-230	0.651701	0.119166	0.142844	0.036392	0.010596	pCi	g	ARS1-B10-01903	0.63271	1						
ARS1-B10-01903-20	TLS-SB-IA3FL-9 (10.0-11.0)03051C	ARS1-10-00493-015	ASP-A-009	TH-230	0.593441	0.132648	0.150797	0.041222	0.010242	pCi	g	ARS1-B10-01903	0.45801	1						
ARS1-B10-01903-17	TLS-SB-IA3FL-9 (2.0-3.0)03051C	ARS1-10-00493-012	ASP-A-009	TH-230	0.862704	0.19349	0.219796	0.087991	0.029183	pCi	g	ARS1-B10-01903	0.34649	1						
ARS1-B10-01903-18	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	ASP-A-009	TH-230	0.715359	0.108604	0.138816	0.022997	0.005706	pCi	g	ARS1-B10-01903	0.8228	1						
ARS1-B10-01903-19	TLS-SB-IA3FL-9 (8.3-9.3)03051C	ARS1-10-00493-014	ASP-A-009	TH-230	0.880582	0.134879	0.171812	0.014574	0	pCi	g	ARS1-B10-01903	0.66215	1						
ARS1-B10-01903-21	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	ASP-A-009	TH-230	0.790393	0.145114	0.173734	0.037138	0.009226	pCi	g	ARS1-B10-01903	0.55037	1						
ARS1-B10-01903-11	TLS-SS-IA3FL-11 (0.5-1.0)03051C	ARS1-10-00493-006	ASP-A-009	TH-230	1.233236	0.221949	0.267352	0.081958	0.02719	pCi	g	ARS1-B10-01903	0.37189	1						
ARS1-B10-01903-06	TLS-SS-IA3FL-7 (1.0-1.5)03051C	ARS1-10-00493-001	ASP-A-009	TH-230	0.777494	0.118837	0.1515	0.034298	0.010818	pCi	g	ARS1-B10-01903	0.78316	1						
ARS1-B10-01903-16	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	ASP-A-009	TH-230	1.458885	0.250352	0.306212	0.059866	0.014855	pCi	g	ARS1-B10-01903	0.34521	1						
ARS1-B10-01903-04	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	ASP-A-009	TH-232	0.319901	0.11063	0.117192	0.071941	0.023328	pCi	g	ARS1-B10-01903	0.40296	1						
ARS1-B10-01903-05	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	ASP-A-009	TH-232	1.838126	0.233952	0.322626	0.041612	0.010332	pCi	g	ARS1-B10-01903	0.42953	1						
ARS1-B10-01903-23	TLS-SB-IA3FL-1 (5.0-6.0)03051C	ARS1-10-00493-018	ASP-A-009	TH-232	0.329179	0.080612	0.089895	0.04187	0.014282	pCi	g	ARS1-B10-01903	0.67636	1						
ARS1-B10-01903-12	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	ASP-A-009	TH-232	1.185324	0.250973	0.288982	0.089546	0.026322	pCi	g	ARS1-B10-01903	0.27728	1						
ARS1-B10-01903-13	TLS-SB-IA3FL-11 (3.0-4.0)03051C	ARS1-10-00493-008	ASP-A-009	TH-232	0.828799	0.120055	0.156356	0.024271	0.006024	pCi	g	ARS1-B10-01903	0.75172	1						
ARS1-B10-01903-14	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	ASP-A-009	TH-232	0.89395	0.124663	0.164967	0.032869	0.010363	pCi	g	ARS1-B10-01903	0.83961	1						
ARS1-B10-01903-15	TLS-SB-IA3FL-11 (7.0-8.0)03051C	ARS1-10-00493-010	ASP-A-009	TH-232	0.873903	0.130882	0.168184	0.05053	0.018548	pCi	g	ARS1-B10-01903	0.66803	1						
ARS1-B10-01903-07	TLS-SB-IA3FL-7 (1.5-2.5)03051C	ARS1-10-00493-002	ASP-A-009	TH-232	0.868096	0.140868	0.175647	0.031889	0.007918	pCi	g	ARS1-B10-01903	0.57921	1						
ARS1-B10-01903-08	TLS-SB-IA3FL-7 (3.2-4.2)03051C	ARS1-10-00493-003	ASP-A-009	TH-232	0.748082	0.1145	0.145893	0.03309	0.010437	pCi	g	ARS1-B10-01903	0.78243	1						
ARS1-B10-01903-09	TLS-SB-IA3FL-7 (5.5-6.5)03051C	ARS1-10-00493-004	ASP-A-009	TH-232	0.680226	0.111648	0.138651	0.025559	0.006346	pCi	g	ARS1-B10-01903	0.77452	1						
ARS1-B10-01903-10	TLS-SB-IA3FL-7 (6.5-7.5)03051C	ARS1-10-00493-005	ASP-A-009	TH-232	0.773624	0.130505	0.160543	0.04861	0.016721	pCi	g	ARS1-B10-01903	0.63271	1						
ARS1-B10-01903-20	TLS-SB-IA3FL-9 (10.0-11.0)03051C	ARS1-10-00493-015	ASP-A-009	TH-232	0.563411	0.129459	0.146275	0.046092	0.012697	pCi	g	ARS1-B10-01903	0.45801	1						
ARS1-B10-01903-17	TLS-SB-IA3FL-9 (2.0-3.0)03051C	ARS1-10-00493-012	ASP-A-009	TH-232	0.906291	0.199064	0.22721	0.0976	0.034017	pCi	g	ARS1-B10-01903	0.34649	1						
ARS1-B10-01903-18	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	ASP-A-009	TH-232	0.784828	0.113823	0.148166	0.027668	0.008053	pCi	g	ARS1-B10-01903	0.8228	1						
ARS1-B10-01903-19	TLS-SB-IA3FL-9 (8.3-9.3)03051C	ARS1-10-00493-014	ASP-A-009	TH-232	0.830065	0.1311	0.165081	0.028867	0.007161	pCi	g	ARS1-B10-01903	0.66215	1						
ARS1-B10-01903-21	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	ASP-A-009	TH-232	0.702701	0.136298	0.160593	0.018649	0	pCi	g	ARS1-B10-01903	0.55037	1						
ARS1-B10-01903-11	TLS-SS-IA3FL-11 (0.5-1.0)03051C	ARS1-10-00493-006	ASP-A-009	TH-232	0.854993	0.185482	0.212324	0.081794	0.027135	pCi	g	ARS1-B10-01903	0.37189	1						
ARS1-B10-01903-06	TLS-SS-IA3FL-7 (1.0-1.5)03051C	ARS1-10-00493-001	ASP-A-009	TH-232	0.899203	0.127353	0.167421	0.030267	0.008815	pCi	g	ARS1-B10-01903	0.78316	1						
ARS1-B10-01903-16	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	ASP-A-009	TH-232	0.673782	0.17046	0.188913	0.059746	0.014825	pCi	g	ARS1-B10-01903	0.34521	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01915-06	TLS-SB-IA3FL-1 (12.0-13.0)03051C	ARS1-10-00493-021	ASP-A-009	TH-228	0.592282	0.134182	0.152082	0.07312	0.026428	pCi	g	ARS1-B10-01915	0.52085	1						
ARS1-B10-01915-04	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	ASP-A-009	TH-228	0.640732	0.116593	0.139967	0.065397	0.025733	pCi	g	ARS1-B10-01915	0.72957	1						
ARS1-B10-01915-05	TLS-SB-IA3FL-1 (6.0-7.0)03051C	ARS1-10-00493-020	ASP-A-009	TH-228	0.684531	0.133333	0.156915	0.074944	0.028924	pCi	g	ARS1-B10-01915	0.58919	1						
ARS1-B10-01915-11	TLS-SB-IA3FL-10 (13.0-14.0)03051C	ARS1-10-00493-026	ASP-A-009	TH-228	0.653393	0.13588	0.157161	0.089667	0.035852	pCi	g	ARS1-B10-01915	0.5367	1						
ARS1-B10-01915-09	TLS-SB-IA3FL-10 (3.0-4.0)03051C	ARS1-10-00493-024	ASP-A-009	TH-228	0.817139	0.179611	0.204973	0.105769	0.039937	pCi	g	ARS1-B10-01915	0.40144	1						
ARS1-B10-01915-10	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	ASP-A-009	TH-228	0.855365	0.116554	0.155796	0.050441	0.019849	pCi	g	ARS1-B10-01915	0.89014	1						
ARS1-B10-01915-13	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	ASP-A-009	TH-228	0.772383	0.139121	0.167538	0.07734	0.030432	pCi	g	ARS1-B10-01915	0.61671	1						
ARS1-B10-01915-15	TLS-SB-IA3FL-8 (4.0-5.0)03051C	ARS1-10-00493-030	ASP-A-009	TH-228	0.775387	0.117729	0.150474	0.044307	0.016014	pCi	g	ARS1-B10-01915	0.80078	1						
ARS1-B10-01915-16	TLS-SB-IA3FL-8 (6.0-7.0)03051C	ARS1-10-00493-031	ASP-A-009	TH-228	0.715048	0.129078	0.155338	0.067803	0.026162	pCi	g	ARS1-B10-01915	0.71652	1						
ARS1-B10-01915-07	TLS-SS-IA3FL-10 (1.5-2.0)03051C	ARS1-10-00493-022	ASP-A-009	TH-228	0.916485	0.150186	0.186615	0.072324	0.027907	pCi	g	ARS1-B10-01915	0.65301	1						
ARS1-B10-01915-12	TLS-SS-IA3FL-8 (1.0-1.5)03051C	ARS1-10-00493-027	ASP-A-009	TH-228	1.052286	0.178898	0.219498	0.096337	0.038133	pCi	g	ARS1-B10-01915	0.50294	1						
ARS1-B10-01915-23	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	ASP-A-009	TH-228	2.981134	0.305666	0.472492	0.107272	0.042891	pCi	g	ARS1-B10-01915	0.48347	1						
ARS1-B10-01915-21	TLS-SB-IA6-16 (14.0-15.0) 03081C	ARS1-10-00511-005	ASP-A-009	TH-228	0.549931	0.165039	0.17792	0.138811	0.054656	pCi	g	ARS1-B10-01915	0.32626	1						
ARS1-B10-01915-18	TLS-SB-IA6-16 (4.0-5.0) 03081C	ARS1-10-00511-002	ASP-A-009	TH-228	0.844637	0.120657	0.158048	0.048067	0.018149	pCi	g	ARS1-B10-01915	0.83061	1						
ARS1-B10-01915-19	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	ASP-A-009	TH-228	0.726436	0.11138	0.141824	0.045994	0.017177	pCi	g	ARS1-B10-01915	0.89287	1						
ARS1-B10-01915-20	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	ASP-A-009	TH-228	0.682082	0.113806	0.140526	0.047803	0.017427	pCi	g	ARS1-B10-01915	0.83101	1						
ARS1-B10-01915-22	TLS-SS-IA1-1 (0.8-1.3) 03081C	ARS1-10-00511-006	ASP-A-009	TH-228	0.476631	0.074145	0.093893	0.036202	0.014246	pCi	g	ARS1-B10-01915	1.30433	1						
ARS1-B10-01915-17	TLS-SS-IA6-16 (3.0-3.5) 03081C	ARS1-10-00511-001	ASP-A-009	TH-228	0.684668	0.106575	0.134929	0.046841	0.017801	pCi	g	ARS1-B10-01915	0.88202	1						
ARS1-B10-01915-06	TLS-SB-IA3FL-1 (12.0-13.0)03051C	ARS1-10-00493-021	ASP-A-009	TH-230	5.747669	0.398585	0.800894	0.057757	0.019161	pCi	g	ARS1-B10-01915	0.52085	1						
ARS1-B10-01915-04	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	ASP-A-009	TH-230	0.69401	0.115993	0.143143	0.04286	0.014749	pCi	g	ARS1-B10-01915	0.72957	1						
ARS1-B10-01915-05	TLS-SB-IA3FL-1 (6.0-7.0)03051C	ARS1-10-00493-020	ASP-A-009	TH-230	0.526317	0.111442	0.128319	0.039262	0.011432	pCi	g	ARS1-B10-01915	0.58919	1						
ARS1-B10-01915-11	TLS-SB-IA3FL-10 (13.0-14.0)03051C	ARS1-10-00493-026	ASP-A-009	TH-230	0.836069	0.143235	0.175291	0.034231	0.008504	pCi	g	ARS1-B10-01915	0.5367	1						
ARS1-B10-01915-09	TLS-SB-IA3FL-10 (3.0-4.0)03051C	ARS1-10-00493-024	ASP-A-009	TH-230	0.841456	0.173355	0.200984	0.059451	0.017307	pCi	g	ARS1-B10-01915	0.40144	1						
ARS1-B10-01915-10	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	ASP-A-009	TH-230	0.92779	0.116547	0.161732	0.020473	0.005086	pCi	g	ARS1-B10-01915	0.89014	1						
ARS1-B10-01915-13	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	ASP-A-009	TH-230	1.085158	0.157269	0.204779	0.050674	0.017438	pCi	g	ARS1-B10-01915	0.61671	1						
ARS1-B10-01915-15	TLS-SB-IA3FL-8 (4.0-5.0)03051C	ARS1-10-00493-030	ASP-A-009	TH-230	0.850907	0.119968	0.158014	0.034988	0.011607	pCi	g	ARS1-B10-01915	0.80078	1						
ARS1-B10-01915-16	TLS-SB-IA3FL-8 (6.0-7.0)03051C	ARS1-10-00493-031	ASP-A-009	TH-230	0.738643	0.125433	0.153958	0.038178	0.011668	pCi	g	ARS1-B10-01915	0.71652	1						
ARS1-B10-01915-07	TLS-SS-IA3FL-10 (1.5-2.0)03051C	ARS1-10-00493-022	ASP-A-009	TH-230	0.846264	0.138628	0.172275	0.040737	0.01245	pCi	g	ARS1-B10-01915	0.65301	1						
ARS1-B10-01915-12	TLS-SS-IA3FL-8 (1.0-1.5)03051C	ARS1-10-00493-027	ASP-A-009	TH-230	1.177479	0.180409	0.229782	0.053817	0.017286	pCi	g	ARS1-B10-01915	0.50294	1						
ARS1-B10-01915-23	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	ASP-A-009	TH-230	3.185503	0.305686	0.491599	0.041061	0.0102	pCi	g	ARS1-B10-01915	0.48347	1						
ARS1-B10-01915-21	TLS-SB-IA6-16 (14.0-15.0) 03081C	ARS1-10-00511-005	ASP-A-009	TH-230	1.204491	0.22154	0.265089	0.07113	0.021383	pCi	g	ARS1-B10-01915	0.32626	1						
ARS1-B10-01915-18	TLS-SB-IA6-16 (4.0-5.0) 03081C	ARS1-10-00511-002	ASP-A-009	TH-230	0.716885	0.107654	0.13819	0.027089	0.007886	pCi	g	ARS1-B10-01915	0.83061	1						
ARS1-B10-01915-19	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	ASP-A-009	TH-230	0.806584	0.113174	0.149371	0.01689	0.002849	pCi	g	ARS1-B10-01915	0.89287	1						
ARS1-B10-01915-20	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	ASP-A-009	TH-230	0.885335	0.125859	0.165196	0.037026	0.012288	pCi	g	ARS1-B10-01915	0.83101	1						
ARS1-B10-01915-22	TLS-SS-IA1-1 (0.8-1.3) 03081C	ARS1-10-00511-006	ASP-A-009	TH-230	0.854548	0.09468	0.140112	0.014678	0.003647	pCi	g	ARS1-B10-01915	1.30433	1						
ARS1-B10-01915-17	TLS-SS-IA6-16 (3.0-3.5) 03081C	ARS1-10-00511-001	ASP-A-009	TH-230	0.721668	0.105918	0.137208	0.032113	0.010652	pCi	g	ARS1-B10-01915	0.88202	1						
ARS1-B10-01915-06	TLS-SB-IA3FL-1 (12.0-13.0)03051C	ARS1-10-00493-021	ASP-A-009	TH-232	0.491826	0.118498	0.132572	0.057641	0.019123	pCi	g	ARS1-B10-01915	0.52085	1						
ARS1-B10-01915-04	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	ASP-A-009	TH-232	0.436784	0.092454	0.106463	0.041964	0.014314	pCi	g	ARS1-B10-01915	0.72957	1						
ARS1-B10-01915-05	TLS-SB-IA3FL-1 (6.0-7.0)03051C	ARS1-10-00493-020	ASP-A-009	TH-232	0.404604	0.099237	0.110631	0.052444	0.01804	pCi	g	ARS1-B10-01915	0.58919	1						
ARS1-B10-01915-11	TLS-SB-IA3FL-10 (13.0-14.0)03051C	ARS1-10-00493-026	ASP-A-009	TH-232	0.749189	0.135114	0.162649	0.01719	0	pCi	g	ARS1-B10-01915	0.5367	1						
ARS1-B10-01915-09	TLS-SB-IA3FL-10 (3.0-4.0)03051C	ARS1-10-00493-024	ASP-A-009	TH-232	0.764497	0.165827	0.189831	0.067095	0.021154	pCi	g	ARS1-B10-01915	0.40144	1						
ARS1-B10-01915-10	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	ASP-A-009	TH-232	0.893854	0.114374	0.157328	0.022891	0.006306	pCi	g	ARS1-B10-01915	0.89014	1						
ARS1-B10-01915-13	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	ASP-A-009	TH-232	0.811202	0.13615	0.167777	0.049614	0.016924	pCi	g	ARS1-B10-01915	0.61671	1						
ARS1-B10-01915-15	TLS-SB-IA3FL-8 (4.0-5.0)03051C	ARS1-10-00493-030	ASP-A-009	TH-232	0.71455	0.109963	0.139822	0.034918	0.011584	pCi	g	ARS1-B10-01915	0.80078	1						
ARS1-B10-01915-16	TLS-SB-IA3FL-8 (6.0-7.0)03051C	ARS1-10-00493-031	ASP-A-009	TH-232	0.846752	0.133931	0.168555	0.035943	0.010566	pCi	g	ARS1-B10-01915	0.71652	1						
ARS1-B10-01915-07	TLS-SS-IA3FL-10 (1.5-2.0)03051C	ARS1-10-00493-022	ASP-A-009	TH-232	0.880433	0.141087	0.176716	0.038352	0.011274	pCi	g	ARS1-B10-01915	0.65301	1						
ARS1-B10-01915-12	TLS-SS-IA3FL-8 (1.0-1.5)03051C	ARS1-10-00493-027	ASP-A-009	TH-232	0.585032	0.12689	0.14526	0.041249	0.011021	pCi	g	ARS1-B10-01915	0.50294	1						
ARS1-B10-01915-23	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	ASP-A-009	TH-232	3.361819	0.31347	0.513178	0.020619	0	pCi	g	ARS1-B10-01915	0.48347	1						
ARS1-B10-01915-21	TLS-SB-IA6-16 (14.0-15.0) 03081C	ARS1-10-00511-005	ASP-A-009	TH-232	0.718535	0.170617	0.191446	0.056233	0.013963	pCi	g	ARS1-B10-01915	0.32626	1						
ARS1-B10-01915-18	TLS-SB-IA6-16 (4.0-5.0) 03081C	ARS1-10-00511-002	ASP-A-009	TH-232	0.70398	0.106787	0.136538	0.030573	0.009639	pCi	g	ARS1-B10-01915	0.83061	1						
ARS1-B10-01915-19	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	ASP-A-009	TH-232	0.737083	0.108031	0.140024	0.01117	0	pCi	g	ARS1-B10-01915	0.89287	1						
ARS1-B10-01915-20	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	ASP-A-009	TH-232	0.795297	0.119144	0.153083	0.035353	0.011464	pCi	g	ARS1-B10-01915	0.83101	1						
ARS1-B10-01915-22	TLS-SS-IA1-1 (0.8-1.3) 03081C	ARS1-10-00511-006	ASP-A-009	TH-232	0.310188	0.05718	0.068374	0.016412	0.004521	pCi	g	ARS1-B10-01915	1.30433	1						
ARS1-B10-01915-17	TLS-SS-IA6-16 (3.0-3.5) 03081C	ARS1-10-00511-001	ASP-A-009	TH-232	0.536014	0.090756	0.111505	0.021418	0.005315	pCi	g	ARS1-B10-01915	0.88202	1						
ARS1-B10-01917-04	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	ASP-A-009	TH-228	0.658806	0.107209	0.133543	0.054505	0.021449	pCi	g	ARS1-B10-01917	0.90051	1						
ARS1-B10-01917-07	TLS-SB-IA1-1 (23.8-24.8) 03081C	ARS1-10-00511-010	ASP-A-009	TH-228	0.617061	0.108395	0.131573	0.05228	0.01974	pCi	g	ARS1-B10-01917	0.7336	1						
ARS1-B10-01917-17	TLS-SB-IA1-2 (18.3-19.3) 03081C	ARS1-10-00511-020	ASP-A-009	TH-228	0.784276	0.13026	0.161097	0.063496	0.0245	pCi	g	ARS1-B10-01917	0.74166	1						
ARS1-B10-01917-18	TLS-SB-IA1-2 (22.0-22.7) 03081C	ARS1-10-00511-021	ASP-A-009	TH-228	2.990554	0.373576	0.519805	0.133601	0.050772	pCi	g	ARS1-B10-01917	0.31878	1						
ARS1-B10-01917-20	TLS-SB-IA1-2 (25.0-26.0) 03081C	ARS1-10-00511-023	ASP-A-009	TH-228	0.438317	0.087467	0.102259	0.044359	0.016327	pCi	g	ARS1-B10-01917	0.79898	1						
ARS1-B10-01917-13	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	ASP-A-009	TH-228	0.466692	0.126819	0.138797	0.100413	0.039746	pCi	g	ARS1-B10-01917	0.48584	1						
ARS1-B10-01917-14	TLS-SB-IA6-15 (6.0-7.0) 03081C	ARS1-10-00511-017	ASP-A-009	TH-228	0.669527	0.122527	0.146836	0.069066	0.027176	pCi	g	ARS1-B10-01917	0.68216	1						
ARS1-B10-01917-09	TLS-SB-IA6-17 (3.0-4.0) 03081C	ARS1-10-00511-012	ASP-A-009	TH-228	0.634244	0.100364	0.126289	0.040112	0.014623	pCi	g	ARS1-B10-01917	0.89833	1						
ARS1-B10-01917-10	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	ASP-A-009	TH-228	0.719939	0.1096	0.139941	0.052579	0.020703	pCi	g	ARS1-B10-01917	0.80185	1						
ARS1-B10-01917-11	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	ASP-A-009	TH-228	0.37109	0.070959	0.083945	0.041555	0.016353	pCi	g	ARS1-B10-01917	1.10031	1						
ARS1-B10-01917-16	TLS-SS-IA1-2 (0.4-1.0) 03081C	ARS1-10-00511-019	ASP-A-009	TH-228	0.396928	0.105441	0.115841	0.066103	0.023892	pCi	g	ARS1-B10-01917	0.49773	1						
ARS1-B10-01917-12	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	ASP-A-009	TH-228	0.539901	0.115345	0.132523	0.077809	0.03111	pCi	g	ARS1-B10-01917	0.63068	1						
ARS1-B10-01917-08	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	ASP-A-009	TH-228	0.677648	0.118959	0.144426	0.055683	0.020795	pCi	g	ARS1-B10-01917	0.71955	1						
ARS1-B10-01917-22	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	ASP-A-009	TH-228	0.791734	0.157074	0.183925	0.103973	0.042117	pCi	g	ARS1-B10-01917	0.55615	1						
ARS1-B10-01917-23	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	ASP-A-009	TH-228	0.748639	0.13723	0.164374	0.079972	0.031789	pCi	g	ARS1-B10-01917	0.53952	1						
ARS1-B10-01917-21	TLS-SS-IA4-BO1 (1.3-1.8)03091C	ARS1-10-00559-001	ASP-A-009	TH-228	0.923259	0.144219	0.182347	0.063047	0.023887	pCi	g	ARS1-B10-01917	0.55991	1						
ARS1-B10-01917-04	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	ASP-A-009	TH-230	0.717244	0.106354	0.137207	0.022029	0.005473	pCi	g	ARS1-B10-01917	0.90051	1						
ARS1-B10-01917-07	TLS-SB-IA1-1 (23.8-24.8) 03081C	ARS1-10-00511-010	ASP-A-009	TH-230	3.60249	0.250888	0.50251	0.029454	0.008574	pCi	g	ARS1-B10-01917	0.7336	1						
ARS1-B10-01917-17	TLS-SB-IA1-2 (18.3-19.3) 03081C	ARS1-10-00511-020	ASP-A-009	TH-230	0.752358	0.122596	0.152638	0.035841	0.010954	pCi	g	ARS1-B10-01917	0.74166	1						
ARS1-B10-01917-18	TLS-SB-IA1-2 (22.0-22.7) 03081C	ARS1-10-00511-021	ASP-A-009	TH-230	3.339331	0.383626	0.556827	0.091547	0.030367	pCi	g	ARS1-B10-01917	0.31878	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01917-20	TLS-SB-IA1-2 (25.0-26.0) 03081C	ARS1-10-00511-023	ASP-A-009	TH-230	0.529823	0.092628	0.112607	0.03047	0.00961	pCi	g	ARS1-B10-01917	0.79898	1						
ARS1-B10-01917-13	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	ASP-A-009	TH-230	0.634362	0.13618	0.15628	0.056229	0.018061	pCi	g	ARS1-B10-01917	0.48584	1						
ARS1-B10-01917-14	TLS-SB-IA6-15 (6.0-7.0) 03081C	ARS1-10-00511-017	ASP-A-009	TH-230	0.646928	0.11539	0.139385	0.045362	0.01561	pCi	g	ARS1-B10-01917	0.68216	1						
ARS1-B10-01917-09	TLS-SB-IA6-17 (3.0-4.0) 03081C	ARS1-10-00511-012	ASP-A-009	TH-230	0.698562	0.102428	0.132739	0.031054	0.010306	pCi	g	ARS1-B10-01917	0.89833	1						
ARS1-B10-01917-10	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	ASP-A-009	TH-230	0.857555	0.114661	0.154562	0.026929	0.008095	pCi	g	ARS1-B10-01917	0.80185	1						
ARS1-B10-01917-11	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	ASP-A-009	TH-230	2.161638	0.161513	0.307151	0.016905	0.0042	pCi	g	ARS1-B10-01917	1.10031	1						
ARS1-B10-01917-16	TLS-SS-IA1-2 (0.4-1.0) 03081C	ARS1-10-00511-019	ASP-A-009	TH-230	0.594666	0.123575	0.142955	0.052327	0.01736	pCi	g	ARS1-B10-01917	0.49773	1						
ARS1-B10-01917-12	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	ASP-A-009	TH-230	0.787203	0.129603	0.160776	0.029777	0.007397	pCi	g	ARS1-B10-01917	0.63068	1						
ARS1-B10-01917-08	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	ASP-A-009	TH-230	1.021759	0.140117	0.186769	0.020439	0.003448	pCi	g	ARS1-B10-01917	0.71955	1						
ARS1-B10-01917-22	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	ASP-A-009	TH-230	1.963165	0.230956	0.331115	0.056449	0.01873	pCi	g	ARS1-B10-01917	0.55615	1						
ARS1-B10-01917-23	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	ASP-A-009	TH-230	0.937513	0.145349	0.184296	0.037555	0.010892	pCi	g	ARS1-B10-01917	0.53952	1						
ARS1-B10-01917-21	TLS-SS-IA4-BO1 (1.3-1.8)03091C	ARS1-10-00559-001	ASP-A-009	TH-230	1.163807	0.156403	0.210349	0.039794	0.012551	pCi	g	ARS1-B10-01917	0.55991	1						
ARS1-B10-01917-04	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	ASP-A-009	TH-232	0.684748	0.103932	0.132857	0.024632	0.006785	pCi	g	ARS1-B10-01917	0.90051	1						
ARS1-B10-01917-07	TLS-SB-IA1-1 (23.8-24.8) 03081C	ARS1-10-00511-010	ASP-A-009	TH-232	0.588472	0.101983	0.124334	0.033241	0.01048	pCi	g	ARS1-B10-01917	0.7336	1						
ARS1-B10-01917-17	TLS-SB-IA1-2 (18.3-19.3) 03081C	ARS1-10-00511-020	ASP-A-009	TH-232	0.714814	0.119287	0.147286	0.033742	0.009919	pCi	g	ARS1-B10-01917	0.74166	1						
ARS1-B10-01917-18	TLS-SB-IA1-2 (22.0-22.7) 03081C	ARS1-10-00511-021	ASP-A-009	TH-232	2.568382	0.335092	0.456777	0.061057	0.015153	pCi	g	ARS1-B10-01917	0.31878	1						
ARS1-B10-01917-20	TLS-SB-IA1-2 (25.0-26.0) 03081C	ARS1-10-00511-023	ASP-A-009	TH-232	0.344328	0.074612	0.085433	0.026889	0.007831	pCi	g	ARS1-B10-01917	0.79898	1						
ARS1-B10-01917-13	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	ASP-A-009	TH-232	0.406514	0.108409	0.119022	0.043098	0.011515	pCi	g	ARS1-B10-01917	0.48584	1						
ARS1-B10-01917-14	TLS-SB-IA6-15 (6.0-7.0) 03081C	ARS1-10-00511-017	ASP-A-009	TH-232	0.427235	0.094199	0.107423	0.044413	0.01515	pCi	g	ARS1-B10-01917	0.68216	1						
ARS1-B10-01917-09	TLS-SB-IA6-17 (3.0-4.0) 03081C	ARS1-10-00511-012	ASP-A-009	TH-232	0.682321	0.101051	0.130429	0.029651	0.009615	pCi	g	ARS1-B10-01917	0.89833	1						
ARS1-B10-01917-10	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	ASP-A-009	TH-232	0.637082	0.098581	0.125088	0.021289	0.005286	pCi	g	ARS1-B10-01917	0.80185	1						
ARS1-B10-01917-11	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	ASP-A-009	TH-232	0.322803	0.06263	0.073788	0.018902	0.005207	pCi	g	ARS1-B10-01917	1.10031	1						
ARS1-B10-01917-16	TLS-SS-IA1-2 (0.4-1.0) 03081C	ARS1-10-00511-019	ASP-A-009	TH-232	0.412545	0.103453	0.114842	0.052222	0.017325	pCi	g	ARS1-B10-01917	0.49773	1						
ARS1-B10-01917-12	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	ASP-A-009	TH-232	0.616836	0.114345	0.136501	0.014953	0	pCi	g	ARS1-B10-01917	0.63068	1						
ARS1-B10-01917-08	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	ASP-A-009	TH-232	0.606623	0.107809	0.130377	0.013516	0	pCi	g	ARS1-B10-01917	0.71955	1						
ARS1-B10-01917-22	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	ASP-A-009	TH-232	0.691441	0.137645	0.161027	0.051327	0.016188	pCi	g	ARS1-B10-01917	0.55615	1						
ARS1-B10-01917-23	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	ASP-A-009	TH-232	0.617057	0.117695	0.139334	0.03126	0.007761	pCi	g	ARS1-B10-01917	0.53952	1						
ARS1-B10-01917-21	TLS-SS-IA4-BO1 (1.3-1.8)03091C	ARS1-10-00559-001	ASP-A-009	TH-232	0.913976	0.138099	0.176843	0.029126	0.007232	pCi	g	ARS1-B10-01917	0.55991	1						
ARS1-B10-01928-13	TLS-SB-IA1-14 (2.1-3.1)03091C	ARS1-10-00559-013	ASP-A-009	TH-228	0.975924	0.132841	0.177649	0.047173	0.017364	pCi	g	ARS1-B10-01928	0.83081	1						
ARS1-B10-01928-14	TLS-SB-IA1-14 (3.1-4.1)03091C	ARS1-10-00559-014	ASP-A-009	TH-228	0.862251	0.129819	0.166472	0.054846	0.02078	pCi	g	ARS1-B10-01928	0.75487	1						
ARS1-B10-01928-15	TLS-SB-IA1-14 (5.0-6.0)03091C	ARS1-10-00559-015	ASP-A-009	TH-228	1.019134	0.139372	0.186001	0.067009	0.027144	pCi	g	ARS1-B10-01928	0.8158	1						
ARS1-B10-01928-16	TLS-SB-IA1-14 (8.0-9.0)03091C	ARS1-10-00559-016	ASP-A-009	TH-228	0.705576	0.112992	0.14156	0.058523	0.023263	pCi	g	ARS1-B10-01928	0.82276	1						
ARS1-B10-01928-23	TLS-SB-IA1-18 (1.5-2.5)03091C	ARS1-10-00559-023	ASP-A-009	TH-228	0.958992	0.142499	0.183684	0.054992	0.020241	pCi	g	ARS1-B10-01928	0.71387	1						
ARS1-B10-01928-10	TLS-SB-IA1-7 (18.6-19.6)03091C	ARS1-10-00559-010	ASP-A-009	TH-228	1.575167	0.215894	0.287842	0.088212	0.034037	pCi	g	ARS1-B10-01928	0.52283	1						
ARS1-B10-01928-11	TLS-SB-IA1-7 (21.6-22.6)03091C	ARS1-10-00559-011	ASP-A-009	TH-228	0.711658	0.130425	0.156233	0.066525	0.025281	pCi	g	ARS1-B10-01928	0.60168	1						
ARS1-B10-01928-09	TLS-SB-IA1-7 (17.6-18.6)03091C	ARS1-10-00559-009	ASP-A-009	TH-228	2.430262	0.285986	0.409952	0.084288	0.030465	pCi	g	ARS1-B10-01928	0.40127	1						
ARS1-B10-01928-18	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	ASP-A-009	TH-228	0.793953	0.112548	0.147902	0.051504	0.020387	pCi	g	ARS1-B10-01928	0.83381	1						
ARS1-B10-01928-19	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	ASP-A-009	TH-228	1.235093	0.144206	0.207553	0.054033	0.021261	pCi	g	ARS1-B10-01928	0.90282	1						
ARS1-B10-01928-20	TLS-SB-IA4-B03 (28.6-29.6)03091C	ARS1-10-00559-020	ASP-A-009	TH-228	1.338936	0.189296	0.249038	0.072434	0.027051	pCi	g	ARS1-B10-01928	0.54225	1						
ARS1-B10-01928-21	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	ASP-A-009	TH-228	0.769857	0.126576	0.157095	0.05244	0.019117	pCi	g	ARS1-B10-01928	0.74491	1						
ARS1-B10-01928-04	TLS-SB-IA4-BO1 (18.2-19.2)03091C	ARS1-10-00559-004	ASP-A-009	TH-228	2.08913	0.267368	0.367748	0.109157	0.042951	pCi	g	ARS1-B10-01928	0.44268	1						
ARS1-B10-01928-05	TLS-SB-IA4-BO1 (38.1-39.1)03091C	ARS1-10-00559-005	ASP-A-009	TH-228	0.61106	0.102389	0.126245	0.045917	0.017148	pCi	g	ARS1-B10-01928	0.74134	1						
ARS1-B10-01928-06	TLS-SB-IA4-BO1 (49.0-50.0)03091C	ARS1-10-00559-006	ASP-A-009	TH-228	0.624134	0.107992	0.131728	0.046926	0.017107	pCi	g	ARS1-B10-01928	0.65737	1						
ARS1-B10-01928-12	TLS-SS-IA1-14 (1.6-2.1)03091C	ARS1-10-00559-012	ASP-A-009	TH-228	0.870365	0.152767	0.185481	0.073627	0.0278	pCi	g	ARS1-B10-01928	0.55514	1						
ARS1-B10-01928-22	TLS-SS-IA1-18 (1.0-1.5)03091C	ARS1-10-00559-022	ASP-A-009	TH-228	0.672116	0.110097	0.136821	0.056406	0.022209	pCi	g	ARS1-B10-01928	0.77	1						
ARS1-B10-01928-07	TLS-SS-IA1-7 (1.0-1.5)03091C	ARS1-10-00559-007	ASP-A-009	TH-228	0.630776	0.120156	0.142301	0.070259	0.027664	pCi	g	ARS1-B10-01928	0.66894	1						
ARS1-B10-01928-17	TLS-SS-IA4-B03 (2.8-3.3)03091C	ARS1-10-00559-017	ASP-A-009	TH-228	1.100433	0.168554	0.214707	0.085589	0.034221	pCi	g	ARS1-B10-01928	0.52411	1						
ARS1-B10-01928-13	TLS-SB-IA1-14 (2.1-3.1)03091C	ARS1-10-00559-013	ASP-A-009	TH-230	1.023054	0.132312	0.181094	0.032419	0.010225	pCi	g	ARS1-B10-01928	0.83081	1						
ARS1-B10-01928-14	TLS-SB-IA1-14 (3.1-4.1)03091C	ARS1-10-00559-014	ASP-A-009	TH-230	1.283133	0.153001	0.217851	0.034607	0.010915	pCi	g	ARS1-B10-01928	0.75487	1						
ARS1-B10-01928-15	TLS-SB-IA1-14 (5.0-6.0)03091C	ARS1-10-00559-015	ASP-A-009	TH-230	0.999739	0.132455	0.179288	0.036369	0.012068	pCi	g	ARS1-B10-01928	0.8158	1						
ARS1-B10-01928-16	TLS-SB-IA1-14 (8.0-9.0)03091C	ARS1-10-00559-016	ASP-A-009	TH-230	0.783768	0.113613	0.147922	0.027474	0.007969	pCi	g	ARS1-B10-01928	0.82276	1						
ARS1-B10-01928-23	TLS-SB-IA1-18 (1.5-2.5)03091C	ARS1-10-00559-023	ASP-A-009	TH-230	1.138275	0.150703	0.204053	0.037786	0.011918	pCi	g	ARS1-B10-01928	0.71387	1						
ARS1-B10-01928-10	TLS-SB-IA1-7 (18.6-19.6)03091C	ARS1-10-00559-010	ASP-A-009	TH-230	1.735523	0.219024	0.303264	0.049815	0.015225	pCi	g	ARS1-B10-01928	0.52283	1						
ARS1-B10-01928-11	TLS-SB-IA1-7 (21.6-22.6)03091C	ARS1-10-00559-011	ASP-A-009	TH-230	0.625077	0.11801	0.140121	0.045606	0.015128	pCi	g	ARS1-B10-01928	0.60168	1						
ARS1-B10-01928-09	TLS-SB-IA1-7 (17.6-18.6)03091C	ARS1-10-00559-009	ASP-A-009	TH-230	2.642924	0.29129	0.432299	0.066753	0.022146	pCi	g	ARS1-B10-01928	0.40127	1						
ARS1-B10-01928-18	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	ASP-A-009	TH-230	0.739167	0.104551	0.13752	0.028847	0.009265	pCi	g	ARS1-B10-01928	0.83381	1						
ARS1-B10-01928-19	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	ASP-A-009	TH-230	1.226328	0.139459	0.20351	0.035495	0.012215	pCi	g	ARS1-B10-01928	0.90282	1						
ARS1-B10-01928-20	TLS-SB-IA4-B03 (28.6-29.6)03091C	ARS1-10-00559-020	ASP-A-009	TH-230	1.562387	0.197635	0.273344	0.026596	0.004486	pCi	g	ARS1-B10-01928	0.54225	1						
ARS1-B10-01928-21	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	ASP-A-009	TH-230	0.990656	0.139411	0.183769	0.040611	0.013477	pCi	g	ARS1-B10-01928	0.74491	1						
ARS1-B10-01928-04	TLS-SB-IA4-BO1 (18.2-19.2)03091C	ARS1-10-00559-004	ASP-A-009	TH-230	1.846385	0.243712	0.330445	0.071731	0.024684	pCi	g	ARS1-B10-01928	0.44268	1						
ARS1-B10-01928-05	TLS-SB-IA4-BO1 (38.1-39.1)03091C	ARS1-10-00559-005	ASP-A-009	TH-230	0.694837	0.10497	0.134429	0.016865	0.002845	pCi	g	ARS1-B10-01928	0.74134	1						
ARS1-B10-01928-06	TLS-SB-IA4-BO1 (49.0-50.0)03091C	ARS1-10-00559-006	ASP-A-009	TH-230	0.695486	0.110718	0.139011	0.036353	0.012064	pCi	g	ARS1-B10-01928	0.65737	1						
ARS1-B10-01928-12	TLS-SS-IA1-14 (1.6-2.1)03091C	ARS1-10-00559-012	ASP-A-009	TH-230	1.194012	0.171896	0.22444	0.041493	0.012079	pCi	g	ARS1-B10-01928	0.55514	1						
ARS1-B10-01928-22	TLS-SS-IA1-18 (1.0-1.5)03091C	ARS1-10-00559-022	ASP-A-009	TH-230	0.559103	0.096134	0.117507	0.028902	0.008688	pCi	g	ARS1-B10-01928	0.77	1						
ARS1-B10-01928-07	TLS-SS-IA1-7 (1.0-1.5)03091C	ARS1-10-00559-007	ASP-A-009	TH-230	1.040662	0.146109	0.192788	0.036006	0.010824	pCi	g	ARS1-B10-01928	0.66894	1						
ARS1-B10-01928-17	TLS-SS-IA4-B03 (2.8-3.3)03091C	ARS1-10-00559-017	ASP-A-009	TH-230	1.428898	0.182984	0.25161	0.03276	0.008138	pCi	g	ARS1-B10-01928	0.52411	1						
ARS1-B10-01928-13	TLS-SB-IA1-14 (2.1-3.1)03091C	ARS1-10-00559-013	ASP-A-009	TH-232	0.770743	0.114671	0.147739	0.028609	0.008332	pCi	g	ARS1-B10-01928	0.83081	1						
ARS1-B10-01928-14	TLS-SB-IA1-14 (3.1-4.1)03091C	ARS1-10-00559-014	ASP-A-009	TH-232	0.979706	0.133286	0.178285	0.02533	0.006289	pCi	g	ARS1-B10-01928	0.75487	1						
ARS1-B10-01928-15	TLS-SB-IA1-14 (5.0-6.0)03091C	ARS1-10-00559-015	ASP-A-009	TH-232	1.008359	0.13269	0.180164	0.033069	0.01043	pCi	g	ARS1-B10-01928	0.8158	1						
ARS1-B10-01928-16	TLS-SB-IA1-14 (8.0-9.0)03091C	ARS1-10-00559-016	ASP-A-009	TH-232	0.620006	0.100822	0.125619	0.022869	0.005678	pCi	g	ARS1-B10-01928	0.82276	1						
ARS1-B10-01928-23	TLS-SB-IA1-18 (1.5-2.5)03091C	ARS1-10-00559-023	ASP-A-009	TH-232	0.793134	0.125646	0.158038	0.033345	0.009711	pCi	g	ARS1-B10-01928	0.71387	1						
ARS1-B10-01928-10	TLS-SB-IA1-7 (18.6-19.6)03091C	ARS1-10-00559-010	ASP-A-009	TH-232	1.693637	0.216031	0.297605	0.046898	0.013786	pCi	g	ARS1-B10-01928	0.52283	1						
ARS1-B10-01928-11	TLS-SB-IA1-7 (21.6-22.6)03091C	ARS1-10-00559-011	ASP-A-009	TH-232	0.765647	0.129259	0.158968	0.030417	0.007549	pCi	g	ARS1-B10-01928	0.60168	1						
ARS1-B10-01928-09	TLS-SB-IA1-7 (17.6-18.6)03091C	ARS1-10-00559-009	ASP-A-009	TH-232	2.211617	0.266408	0.377387	0.066619	0.022101	pCi	g	ARS1-B10-01928	0.40127	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01928-18	TLS-SB-IA4-B03 (14.0-15.0)03091(	ARS1-10-00559-018	ASP-A-009	TH-232	0.474152	0.083482	0.101258	0.02211	0.005907	pCi	g	ARS1-B10-01928	0.83381	1						
ARS1-B10-01928-19	TLS-SB-IA4-B03 (17.6-18.6)03091(	ARS1-10-00559-019	ASP-A-009	TH-232	0.865883	0.117282	0.157185	0.034753	0.011854	pCi	g	ARS1-B10-01928	0.90282	1						
ARS1-B10-01928-20	TLS-SB-IA4-B03 (28.6-29.6)03091(	ARS1-10-00559-020	ASP-A-009	TH-232	1.192363	0.172417	0.224712	0.017588	0	pCi	g	ARS1-B10-01928	0.54225	1						
ARS1-B10-01928-21	TLS-SB-IA4-B03 (33.8-34.8)03091(	ARS1-10-00559-021	ASP-A-009	TH-232	0.772385	0.123072	0.15447	0.038776	0.012574	pCi	g	ARS1-B10-01928	0.74491	1						
ARS1-B10-01928-04	TLS-SB-IA4-BO1 (18.2-19.2)03091(	ARS1-10-00559-004	ASP-A-009	TH-232	1.313463	0.205836	0.25994	0.07023	0.023956	pCi	g	ARS1-B10-01928	0.44268	1						
ARS1-B10-01928-05	TLS-SB-IA4-BO1 (38.1-39.1)03091(	ARS1-10-00559-005	ASP-A-009	TH-232	0.636316	0.100299	0.12639	0.011153	0	pCi	g	ARS1-B10-01928	0.74134	1						
ARS1-B10-01928-06	TLS-SB-IA4-BO1 (49.0-50.0)03091(	ARS1-10-00559-006	ASP-A-009	TH-232	0.540688	0.097624	0.117477	0.03471	0.011255	pCi	g	ARS1-B10-01928	0.65737	1						
ARS1-B10-01928-12	TLS-SS-IA1-14 (1.6-2.1)03091(	ARS1-10-00559-012	ASP-A-009	TH-232	0.977866	0.155856	0.195599	0.046828	0.014764	pCi	g	ARS1-B10-01928	0.55514	1						
ARS1-B10-01928-22	TLS-SS-IA1-18 (1.0-1.5)03091(	ARS1-10-00559-022	ASP-A-009	TH-232	0.488136	0.08947	0.10717	0.022849	0.005674	pCi	g	ARS1-B10-01928	0.77	1						
ARS1-B10-01928-07	TLS-SS-IA1-7 (1.0-1.5)03091(	ARS1-10-00559-007	ASP-A-009	TH-232	0.67391	0.117304	0.142808	0.028466	0.007068	pCi	g	ARS1-B10-01928	0.66894	1						
ARS1-B10-01928-17	TLS-SS-IA4-B03 (2.8-3.3)03091(	ARS1-10-00559-017	ASP-A-009	TH-232	1.164282	0.164777	0.216685	0.016451	0	pCi	g	ARS1-B10-01928	0.52411	1						
ARS1-B10-01930-04	TLS-SB-IA1-18 (3.5-4.5)03091(	ARS1-10-00559-024	ASP-A-009	TH-228	1.18721	0.175601	0.226769	0.077048	0.029736	pCi	g	ARS1-B10-01930	0.57856	1						
ARS1-B10-01930-05	TLS-SB-IA1-18 (4.8-5.8)03091(	ARS1-10-00559-025	ASP-A-009	TH-228	0.960672	0.154868	0.193558	0.078075	0.030724	pCi	g	ARS1-B10-01930	0.62269	1						
ARS1-B10-01930-06	TLS-SB-IA1-18 (5.8-6.8)03091(	ARS1-10-00559-026	ASP-A-009	TH-228	0.801513	0.122725	0.15635	0.062298	0.024908	pCi	g	ARS1-B10-01930	0.82502	1						
ARS1-B10-01930-08	TLS-SB-IA1-19 (0.9-1.9)03091(	ARS1-10-00559-028	ASP-A-009	TH-228	0.970364	0.167433	0.204422	0.089639	0.035271	pCi	g	ARS1-B10-01930	0.54297	1						
ARS1-B10-01930-09	TLS-SB-IA1-19 (1.9-2.9)03091(	ARS1-10-00559-029	ASP-A-009	TH-228	1.760914	0.216111	0.303313	0.084851	0.033387	pCi	g	ARS1-B10-01930	0.57385	1						
ARS1-B10-01930-10	TLS-SB-IA1-19 (3.0-4.0)03091(	ARS1-10-00559-030	ASP-A-009	TH-228	1.001813	0.144489	0.188514	0.069524	0.027798	pCi	g	ARS1-B10-01930	0.72026	1						
ARS1-B10-01930-11	TLS-SB-IA1-19 (6.0-7.0)03091(	ARS1-10-00559-031	ASP-A-009	TH-228	0.743772	0.112812	0.144247	0.054885	0.021725	pCi	g	ARS1-B10-01930	0.79573	1						
ARS1-B10-01930-18	TLS-SB-IA1-22 (2.8-3.8)03091(	ARS1-10-00559-038	ASP-A-009	TH-228	1.954287	0.278644	0.365282	0.13906	0.05633	pCi	g	ARS1-B10-01930	0.41722	1						
ARS1-B10-01930-19	TLS-SB-IA1-22 (4.3-5.3)03091(	ARS1-10-00559-039	ASP-A-009	TH-228	1.019577	0.156874	0.199485	0.078408	0.031168	pCi	g	ARS1-B10-01930	0.58096	1						
ARS1-B10-01930-20	TLS-SB-IA1-22 (5.3-6.3)03091(	ARS1-10-00559-040	ASP-A-009	TH-228	0.90291	0.141231	0.178479	0.06523	0.025175	pCi	g	ARS1-B10-01930	0.60513	1						
ARS1-B10-01930-21	TLS-SB-IA1-22 (7.3-8.0)03091(	ARS1-10-00559-041	ASP-A-009	TH-228	0.943584	0.135443	0.17706	0.048321	0.017465	pCi	g	ARS1-B10-01930	0.67774	1						
ARS1-B10-01930-23	TLS-SB-IA4-B02 (13.0-14.0)03091(	ARS1-10-00559-043	ASP-A-009	TH-228	1.108148	0.146758	0.198684	0.055467	0.021079	pCi	g	ARS1-B10-01930	0.69391	1						
ARS1-B10-01930-13	TLS-SB-IA4-B04 (17.0-18.0)03091(	ARS1-10-00559-033	ASP-A-009	TH-228	1.104289	0.146702	0.198329	0.052923	0.019765	pCi	g	ARS1-B10-01930	0.78016	1						
ARS1-B10-01930-14	TLS-SB-IA4-B04 (28.0-29.0)03091(	ARS1-10-00559-034	ASP-A-009	TH-228	2.024875	0.251141	0.350661	0.079578	0.029011	pCi	g	ARS1-B10-01930	0.46584	1						
ARS1-B10-01930-15	TLS-SB-IA4-B04 (33.1-34.1)03091(	ARS1-10-00559-035	ASP-A-009	TH-228	1.269536	0.194442	0.24769	0.093792	0.03693	pCi	g	ARS1-B10-01930	0.47726	1						
ARS1-B10-01930-16	TLS-SB-IA4-B04 (39.0-40.0)03091(	ARS1-10-00559-036	ASP-A-009	TH-228	0.653824	0.107865	0.133714	0.045921	0.016902	pCi	g	ARS1-B10-01930	0.8359	1						
ARS1-B10-01930-07	TLS-SS-IA1-19 (0.4-0.9)03091(	ARS1-10-00559-027	ASP-A-009	TH-228	0.80265	0.13119	0.163161	0.068234	0.027009	pCi	g	ARS1-B10-01930	0.59066	1						
ARS1-B10-01930-17	TLS-SS-IA1-22 (2.3-2.8)03091(	ARS1-10-00559-037	ASP-A-009	TH-228	1.09654	0.184611	0.227255	0.086462	0.032759	pCi	g	ARS1-B10-01930	0.48155	1						
ARS1-B10-01930-22	TLS-SS-IA4-B02 (2.0-2.5)03091(	ARS1-10-00559-042	ASP-A-009	TH-228	0.863621	0.131029	0.167521	0.058815	0.022694	pCi	g	ARS1-B10-01930	0.80886	1						
ARS1-B10-01930-12	TLS-SS-IA4-B04 (2.3-2.8)03091(	ARS1-10-00559-032	ASP-A-009	TH-228	1.260939	0.230613	0.276419	0.12992	0.051121	pCi	g	ARS1-B10-01930	0.36813	1						
ARS1-B10-01930-04	TLS-SB-IA1-18 (3.5-4.5)03091(	ARS1-10-00559-024	ASP-A-009	TH-230	1.460497	0.187576	0.257571	0.040464	0.011782	pCi	g	ARS1-B10-01930	0.57856	1						
ARS1-B10-01930-05	TLS-SB-IA1-18 (4.8-5.8)03091(	ARS1-10-00559-025	ASP-A-009	TH-230	1.092862	0.157603	0.205633	0.031755	0.007889	pCi	g	ARS1-B10-01930	0.62269	1						
ARS1-B10-01930-06	TLS-SB-IA1-18 (5.8-6.8)03091(	ARS1-10-00559-026	ASP-A-009	TH-230	0.909894	0.124568	0.166164	0.023832	0.00592	pCi	g	ARS1-B10-01930	0.82502	1						
ARS1-B10-01930-08	TLS-SB-IA1-19 (0.9-1.9)03091(	ARS1-10-00559-028	ASP-A-009	TH-230	0.952277	0.159215	0.196458	0.058851	0.020252	pCi	g	ARS1-B10-01930	0.54297	1						
ARS1-B10-01930-09	TLS-SB-IA1-19 (1.9-2.9)03091(	ARS1-10-00559-029	ASP-A-009	TH-230	2.043933	0.225253	0.33431	0.055596	0.019132	pCi	g	ARS1-B10-01930	0.57385	1						
ARS1-B10-01930-10	TLS-SB-IA1-19 (3.0-4.0)03091(	ARS1-10-00559-030	ASP-A-009	TH-230	1.010014	0.138667	0.184743	0.026605	0.006609	pCi	g	ARS1-B10-01930	0.72026	1						
ARS1-B10-01930-11	TLS-SB-IA1-19 (6.0-7.0)03091(	ARS1-10-00559-031	ASP-A-009	TH-230	0.854935	0.116009	0.155354	0.030734	0.009872	pCi	g	ARS1-B10-01930	0.79573	1						
ARS1-B10-01930-18	TLS-SB-IA1-22 (2.8-3.8)03091(	ARS1-10-00559-038	ASP-A-009	TH-230	2.765704	0.31682	0.460552	0.075437	0.025031	pCi	g	ARS1-B10-01930	0.41722	1						
ARS1-B10-01930-19	TLS-SB-IA1-22 (4.3-5.3)03091(	ARS1-10-00559-039	ASP-A-009	TH-230	0.970139	0.146313	0.187498	0.03679	0.010671	pCi	g	ARS1-B10-01930	0.58096	1						
ARS1-B10-01930-20	TLS-SB-IA1-22 (5.3-6.3)03091(	ARS1-10-00559-040	ASP-A-009	TH-230	0.882666	0.134304	0.171517	0.034247	0.009972	pCi	g	ARS1-B10-01930	0.60513	1						
ARS1-B10-01930-21	TLS-SB-IA1-22 (7.3-8.0)03091(	ARS1-10-00559-041	ASP-A-009	TH-230	1.021726	0.137371	0.184715	0.038251	0.01269	pCi	g	ARS1-B10-01930	0.67774	1						
ARS1-B10-01930-23	TLS-SB-IA4-B02 (13.0-14.0)03091(	ARS1-10-00559-043	ASP-A-009	TH-230	1.293469	0.153887	0.219363	0.038006	0.012607	pCi	g	ARS1-B10-01930	0.69391	1						
ARS1-B10-01930-13	TLS-SB-IA4-B04 (17.0-18.0)03091(	ARS1-10-00559-033	ASP-A-009	TH-230	1.488064	0.164835	0.243959	0.019428	0.003277	pCi	g	ARS1-B10-01930	0.78016	1						
ARS1-B10-01930-14	TLS-SB-IA4-B04 (28.0-29.0)03091(	ARS1-10-00559-034	ASP-A-009	TH-230	2.122862	0.250884	0.358847	0.061614	0.020448	pCi	g	ARS1-B10-01930	0.46584	1						
ARS1-B10-01930-15	TLS-SB-IA4-B04 (33.1-34.1)03091(	ARS1-10-00559-035	ASP-A-009	TH-230	1.533598	0.204803	0.276224	0.048042	0.014442	pCi	g	ARS1-B10-01930	0.47726	1						
ARS1-B10-01930-16	TLS-SB-IA4-B04 (39.0-40.0)03091(	ARS1-10-00559-036	ASP-A-009	TH-230	0.73026	0.110432	0.141368	0.031541	0.009948	pCi	g	ARS1-B10-01930	0.8359	1						
ARS1-B10-01930-07	TLS-SS-IA1-19 (0.4-0.9)03091(	ARS1-10-00559-027	ASP-A-009	TH-230	0.906235	0.133267	0.172501	0.038195	0.012268	pCi	g	ARS1-B10-01930	0.59066	1						
ARS1-B10-01930-17	TLS-SS-IA1-22 (2.3-2.8)03091(	ARS1-10-00559-037	ASP-A-009	TH-230	1.252772	0.190189	0.243099	0.054528	0.017198	pCi	g	ARS1-B10-01930	0.48155	1						
ARS1-B10-01930-22	TLS-SS-IA4-B02 (2.0-2.5)03091(	ARS1-10-00559-042	ASP-A-009	TH-230	1.451693	0.163411	0.239764	0.033197	0.010146	pCi	g	ARS1-B10-01930	0.80886	1						
ARS1-B10-01930-12	TLS-SS-IA4-B04 (2.3-2.8)03091(	ARS1-10-00559-032	ASP-A-009	TH-230	1.430834	0.234904	0.291693	0.085328	0.029363	pCi	g	ARS1-B10-01930	0.36813	1						
ARS1-B10-01930-04	TLS-SB-IA1-18 (3.5-4.5)03091(	ARS1-10-00559-024	ASP-A-009	TH-232	0.762595	0.136831	0.164978	0.054049	0.018592	pCi	g	ARS1-B10-01930	0.57856	1						
ARS1-B10-01930-05	TLS-SB-IA1-18 (4.8-5.8)03091(	ARS1-10-00559-025	ASP-A-009	TH-232	0.872511	0.140913	0.176001	0.035507	0.009781	pCi	g	ARS1-B10-01930	0.62269	1						
ARS1-B10-01930-06	TLS-SB-IA1-18 (5.8-6.8)03091(	ARS1-10-00559-026	ASP-A-009	TH-232	0.976197	0.128691	0.174589	0.011968	0	pCi	g	ARS1-B10-01930	0.82502	1						
ARS1-B10-01930-08	TLS-SB-IA1-19 (0.9-1.9)03091(	ARS1-10-00559-028	ASP-A-009	TH-232	0.729957	0.139626	0.165163	0.05762	0.019655	pCi	g	ARS1-B10-01930	0.54297	1						
ARS1-B10-01930-09	TLS-SB-IA1-19 (1.9-2.9)03091(	ARS1-10-00559-029	ASP-A-009	TH-232	1.080677	0.164282	0.209875	0.054433	0.018568	pCi	g	ARS1-B10-01930	0.57385	1						
ARS1-B10-01930-10	TLS-SB-IA1-19 (3.0-4.0)03091(	ARS1-10-00559-030	ASP-A-009	TH-232	0.985265	0.1366	0.181217	0.01336	0	pCi	g	ARS1-B10-01930	0.72026	1						
ARS1-B10-01930-11	TLS-SB-IA1-19 (6.0-7.0)03091(	ARS1-10-00559-031	ASP-A-009	TH-232	0.69256	0.104041	0.133532	0.023556	0.006294	pCi	g	ARS1-B10-01930	0.79573	1						
ARS1-B10-01930-18	TLS-SB-IA1-22 (2.8-3.8)03091(	ARS1-10-00559-038	ASP-A-009	TH-232	2.06549	0.273521	0.370314	0.068592	0.021634	pCi	g	ARS1-B10-01930	0.41722	1						
ARS1-B10-01930-19	TLS-SB-IA1-22 (4.3-5.3)03091(	ARS1-10-00559-039	ASP-A-009	TH-232	1.053729	0.152027	0.198321	0.030624	0.007603	pCi	g	ARS1-B10-01930	0.58096	1						
ARS1-B10-01930-20	TLS-SB-IA1-22 (5.3-6.3)03091(	ARS1-10-00559-040	ASP-A-009	TH-232	0.704464	0.120857	0.147836	0.045745	0.015736	pCi	g	ARS1-B10-01930	0.60513	1						
ARS1-B10-01930-21	TLS-SB-IA1-22 (7.3-8.0)03091(	ARS1-10-00559-041	ASP-A-009	TH-232	0.789638	0.120857	0.153995	0.038175	0.012665	pCi	g	ARS1-B10-01930	0.67774	1						
ARS1-B10-01930-23	TLS-SB-IA4-B02 (13.0-14.0)03091(	ARS1-10-00559-043	ASP-A-009	TH-232	0.994953	0.134396	0.18034	0.025348	0.006291	pCi	g	ARS1-B10-01930	0.69391	1						
ARS1-B10-01930-13	TLS-SB-IA4-B04 (17.0-18.0)03091(	ARS1-10-00559-033	ASP-A-009	TH-232	1.18858	0.147128	0.205627	0.012848	0	pCi	g	ARS1-B10-01930	0.78016	1						
ARS1-B10-01930-14	TLS-SB-IA4-B04 (28.0-29.0)03091(	ARS1-10-00559-034	ASP-A-009	TH-232	1.708908	0.224961	0.305395	0.05883	0.019076	pCi	g	ARS1-B10-01930	0.46584	1						
ARS1-B10-01930-15	TLS-SB-IA4-B04 (33.1-34.1)03091(	ARS1-10-00559-035	ASP-A-009	TH-232	1.251799	0.184536	0.238628	0.03798	0.009431	pCi	g	ARS1-B10-01930	0.47726	1						
ARS1-B10-01930-16	TLS-SB-IA4-B04 (39.0-40.0)03091(	ARS1-10-00559-036	ASP-A-009	TH-232	0.600893	0.099963	0.123559	0.027834	0.008106	pCi	g	ARS1-B10-01930	0.8359	1						
ARS1-B10-01930-07	TLS-SS-IA1-19 (0.4-0.9)03091(	ARS1-10-00559-027	ASP-A-009	TH-232	0.612986	0.109232	0.131987	0.029275	0.007822	pCi	g	ARS1-B10-01930	0.59066	1						
ARS1-B10-01930-17	TLS-SS-IA1-22 (2.3-2.8)03091(	ARS1-10-00559-037	ASP-A-009	TH-232	1.164293	0.182483	0.230437	0.039911	0.00991	pCi	g	ARS1-B10-01930	0.48155	1						
ARS1-B10-01930-22	TLS-SS-IA4-B02 (2.0-2.5)03091(	ARS1-10-00559-042	ASP-A-009	TH-232	1.060133	0.139553	0.189451	0.031254	0.009187	pCi	g	ARS1-B10-01930	0.80886	1						
ARS1-B10-01930-12	TLS-SS-IA4-B04 (2.3-2.8)03091(	ARS1-10-00559-032	ASP-A-009	TH-232	0.776644	0.174301	0.197969	0.083542	0.028497	pCi	g	ARS1-B10-01930	0.36813	1						
ARS1-B10-01945-04	TLS-SB-IA4-B02 (16.8-17.8)03091(	ARS1-10-00559-044	ASP-A-009	TH-228	3.483166	0.386959	0.571803	0.141242	0.055907	pCi	g	ARS1-B10-01945	0.35487	1						
ARS1-B10-01945-05	TLS-SB-IA4-B02 (46.4-47.4)03091(	ARS1-10-00559-045	ASP-A-009	TH-228	0.709117	0.134953	0.159867	0.07869	0.030963	pCi	g	ARS1-B10-01945	0.62275	1						
ARS1-B10-01945-06	TLS-SB-IA4-B02 (49.0-50.0)03091(	ARS1-10-00559-046	ASP-A-009	TH-228	0.715697	0.118312	0.14656	0.053979	0.020382	pCi	g	ARS1-B10-01945	0.80495	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01945-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	ASP-A-009	TH-228	0.964842	0.161095	0.198872	0.06771	0.024684	pCi	g	ARS1-B10-01945	0.58882	1						
ARS1-B10-01945-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	ASP-A-009	TH-228	1.49033	0.182324	0.256293	0.071532	0.028165	pCi	g	ARS1-B10-01945	0.64478	1						
ARS1-B10-01945-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	ASP-A-009	TH-228	2.572227	0.387023	0.49642	0.15113	0.055628	pCi	g	ARS1-B10-01945	0.26363	1						
ARS1-B10-01945-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	ASP-A-009	TH-228	0.84418	0.152556	0.18353	0.093481	0.037867	pCi	g	ARS1-B10-01945	0.62773	1						
ARS1-B10-01945-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	ASP-A-009	TH-228	0.648619	0.115161	0.13931	0.059641	0.023018	pCi	g	ARS1-B10-01945	0.7318	1						
ARS1-B10-01945-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	ASP-A-009	TH-228	1.700847	0.247197	0.321502	0.089244	0.032256	pCi	g	ARS1-B10-01945	0.4274	1						
ARS1-B10-01945-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	ASP-A-009	TH-228	1.331304	0.230566	0.281159	0.11671	0.045033	pCi	g	ARS1-B10-01945	0.42373	1						
ARS1-B10-01945-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	ASP-A-009	TH-228	1.036005	0.16068	0.203706	0.070384	0.026748	pCi	g	ARS1-B10-01945	0.59853	1						
ARS1-B10-01945-20	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	ASP-A-009	TH-228	1.333559	0.195824	0.253622	0.090922	0.0358	pCi	g	ARS1-B10-01945	0.5251	1						
ARS1-B10-01945-21	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	ASP-A-009	TH-228	0.792046	0.138414	0.168292	0.062164	0.022881	pCi	g	ARS1-B10-01945	0.6395	1						
ARS1-B10-01945-22	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	ASP-A-009	TH-228	0.802416	0.133718	0.165184	0.062043	0.023507	pCi	g	ARS1-B10-01945	0.70011	1						
ARS1-B10-01945-07	TLS-SS-IA1-13 (1.2-1.7)031010	ARS1-10-00560-001	ASP-A-009	TH-228	0.919459	0.137152	0.176521	0.055197	0.020614	pCi	g	ARS1-B10-01945	0.75687	1						
ARS1-B10-01945-13	TLS-SS-IA1-17 (1.6-2.1)031010	ARS1-10-00560-007	ASP-A-009	TH-228	1.001748	0.175472	0.213187	0.098325	0.039085	pCi	g	ARS1-B10-01945	0.52786	1						
ARS1-B10-01945-18	TLS-SS-IA1-21 (0.4-0.9)031010	ARS1-10-00560-012	ASP-A-009	TH-228	1.792579	0.283651	0.356926	0.120628	0.04505	pCi	g	ARS1-B10-01945	0.34593	1						
ARS1-B10-01945-04	TLS-SB-IA4-B02 (16.8-17.8)030910	ARS1-10-00559-044	ASP-A-009	TH-230	3.204329	0.359587	0.528475	0.079039	0.025387	pCi	g	ARS1-B10-01945	0.35487	1						
ARS1-B10-01945-05	TLS-SB-IA4-B02 (46.4-47.4)030910	ARS1-10-00559-045	ASP-A-009	TH-230	0.854124	0.141223	0.174929	0.051648	0.017773	pCi	g	ARS1-B10-01945	0.62275	1						
ARS1-B10-01945-06	TLS-SB-IA4-B02 (49.0-50.0)030910	ARS1-10-00559-046	ASP-A-009	TH-230	0.683201	0.111395	0.138661	0.030393	0.008848	pCi	g	ARS1-B10-01945	0.80495	1						
ARS1-B10-01945-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	ASP-A-009	TH-230	1.420123	0.189564	0.255722	0.052448	0.017406	pCi	g	ARS1-B10-01945	0.58882	1						
ARS1-B10-01945-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	ASP-A-009	TH-230	1.624759	0.183953	0.269072	0.036656	0.011019	pCi	g	ARS1-B10-01945	0.64478	1						
ARS1-B10-01945-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	ASP-A-009	TH-230	2.45661	0.36748	0.472435	0.10385	0.032755	pCi	g	ARS1-B10-01945	0.26363	1						
ARS1-B10-01945-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	ASP-A-009	TH-230	0.846837	0.144526	0.177096	0.050731	0.016833	pCi	g	ARS1-B10-01945	0.62773	1						
ARS1-B10-01945-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	ASP-A-009	TH-230	0.90101	0.129724	0.169372	0.031326	0.009121	pCi	g	ARS1-B10-01945	0.7318	1						
ARS1-B10-01945-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	ASP-A-009	TH-230	2.183202	0.272729	0.37948	0.070676	0.023447	pCi	g	ARS1-B10-01945	0.4274	1						
ARS1-B10-01945-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	ASP-A-009	TH-230	0.966902	0.188925	0.222146	0.065905	0.020143	pCi	g	ARS1-B10-01945	0.42373	1						
ARS1-B10-01945-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	ASP-A-009	TH-230	1.013378	0.153925	0.196707	0.04825	0.016005	pCi	g	ARS1-B10-01945	0.59853	1						
ARS1-B10-01945-20	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	ASP-A-009	TH-230	1.741505	0.214788	0.300725	0.04658	0.014003	pCi	g	ARS1-B10-01945	0.5251	1						
ARS1-B10-01945-21	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	ASP-A-009	TH-230	0.760056	0.131321	0.160261	0.042706	0.01347	pCi	g	ARS1-B10-01945	0.6395	1						
ARS1-B10-01945-22	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	ASP-A-009	TH-230	0.648509	0.116184	0.14015	0.039134	0.012343	pCi	g	ARS1-B10-01945	0.70011	1						
ARS1-B10-01945-07	TLS-SS-IA1-13 (1.2-1.7)031010	ARS1-10-00560-001	ASP-A-009	TH-230	1.065041	0.142463	0.192003	0.020271	0.003419	pCi	g	ARS1-B10-01945	0.75687	1						
ARS1-B10-01945-13	TLS-SS-IA1-17 (1.6-2.1)031010	ARS1-10-00560-007	ASP-A-009	TH-230	1.209441	0.182984	0.2342	0.046155	0.013387	pCi	g	ARS1-B10-01945	0.52786	1						
ARS1-B10-01945-18	TLS-SS-IA1-21 (0.4-0.9)031010	ARS1-10-00560-012	ASP-A-009	TH-230	2.172001	0.300729	0.399185	0.044289	0.007471	pCi	g	ARS1-B10-01945	0.34593	1						
ARS1-B10-01945-04	TLS-SB-IA4-B02 (16.8-17.8)030910	ARS1-10-00559-044	ASP-A-009	TH-232	2.727295	0.330799	0.466989	0.06058	0.016186	pCi	g	ARS1-B10-01945	0.35487	1						
ARS1-B10-01945-05	TLS-SB-IA4-B02 (46.4-47.4)030910	ARS1-10-00559-045	ASP-A-009	TH-232	0.478083	0.106362	0.121043	0.050567	0.017249	pCi	g	ARS1-B10-01945	0.62275	1						
ARS1-B10-01945-06	TLS-SB-IA4-B02 (49.0-50.0)030910	ARS1-10-00559-046	ASP-A-009	TH-232	0.596844	0.104345	0.126851	0.034302	0.010815	pCi	g	ARS1-B10-01945	0.80495	1						
ARS1-B10-01945-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	ASP-A-009	TH-232	1.107923	0.167386	0.214356	0.050078	0.016238	pCi	g	ARS1-B10-01945	0.58882	1						
ARS1-B10-01945-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	ASP-A-009	TH-232	1.472117	0.174688	0.249343	0.028979	0.007195	pCi	g	ARS1-B10-01945	0.64478	1						
ARS1-B10-01945-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	ASP-A-009	TH-232	2.43382	0.364728	0.468564	0.091645	0.026691	pCi	g	ARS1-B10-01945	0.26363	1						
ARS1-B10-01945-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	ASP-A-009	TH-232	0.862113	0.145306	0.178803	0.046128	0.014549	pCi	g	ARS1-B10-01945	0.62773	1						
ARS1-B10-01945-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	ASP-A-009	TH-232	0.681561	0.113619	0.140338	0.041844	0.014393	pCi	g	ARS1-B10-01945	0.7318	1						
ARS1-B10-01945-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	ASP-A-009	TH-232	1.899937	0.254363	0.342679	0.070534	0.0234	pCi	g	ARS1-B10-01945	0.4274	1						
ARS1-B10-01945-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	ASP-A-009	TH-232	1.230256	0.212283	0.259177	0.062047	0.018239	pCi	g	ARS1-B10-01945	0.42373	1						
ARS1-B10-01945-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	ASP-A-009	TH-232	1.019281	0.153326	0.196684	0.03218	0.007986	pCi	g	ARS1-B10-01945	0.59853	1						
ARS1-B10-01945-20	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	ASP-A-009	TH-232	1.243895	0.181125	0.235388	0.036825	0.009144	pCi	g	ARS1-B10-01945	0.5251	1						
ARS1-B10-01945-21	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	ASP-A-009	TH-232	0.569692	0.113483	0.132738	0.037687	0.010976	pCi	g	ARS1-B10-01945	0.6395	1						
ARS1-B10-01945-22	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	ASP-A-009	TH-232	0.685216	0.11865	0.144694	0.028643	0.007112	pCi	g	ARS1-B10-01945	0.70011	1						
ARS1-B10-01945-07	TLS-SS-IA1-13 (1.2-1.7)031010	ARS1-10-00560-001	ASP-A-009	TH-232	0.801188	0.123388	0.156848	0.013405	0	pCi	g	ARS1-B10-01945	0.75687	1						
ARS1-B10-01945-13	TLS-SS-IA1-17 (1.6-2.1)031010	ARS1-10-00560-007	ASP-A-009	TH-232	0.709735	0.139963	0.164158	0.038419	0.009538	pCi	g	ARS1-B10-01945	0.52786	1						
ARS1-B10-01945-18	TLS-SS-IA1-21 (0.4-0.9)031010	ARS1-10-00560-012	ASP-A-009	TH-232	1.697029	0.265439	0.335448	0.029288	0	pCi	g	ARS1-B10-01945	0.34593	1						
ARS1-B10-01952-04	TLS-SS-IA4-8 (1.3-1.8) 03011	ARS1-10-00469-001	ASP-A-009	TH-228	0.946168	0.224429	0.251883	0.149144	0.057548	pCi	g	ARS1-B10-01952	0.33167	1						
ARS1-B10-01952-22	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	ASP-A-009	TH-228	0.619889	0.169258	0.185098	0.13244	0.052113	pCi	g	ARS1-B10-01952	0.3695	1						
ARS1-B10-01952-23	TLS-SB-IA4-B05 (3.0-4.0)031010	ARS1-10-00560-036	ASP-A-009	TH-228	0.607866	0.107397	0.130121	0.058721	0.023107	pCi	g	ARS1-B10-01952	0.82252	1						
ARS1-B10-01952-18	TLS-SB-IA5-B01 (2.0-3.0)031010	ARS1-10-00560-031	ASP-A-009	TH-228	0.484725	0.130082	0.142665	0.082271	0.029736	pCi	g	ARS1-B10-01952	0.4652	1						
ARS1-B10-01952-19	TLS-SB-IA5-B01 (3.0-4.0)031010	ARS1-10-00560-032	ASP-A-009	TH-228	0.61244	0.139619	0.158027	0.089763	0.034636	pCi	g	ARS1-B10-01952	0.552	1						
ARS1-B10-01952-20	TLS-SB-IA5-B01 (4.0-5.0)031010	ARS1-10-00560-033	ASP-A-009	TH-228	0.756236	0.155139	0.18006	0.087469	0.033241	pCi	g	ARS1-B10-01952	0.48383	1						
ARS1-B10-01952-05	TLS-SB-IA5-B02 (3.0-4.0)031010	ARS1-10-00560-018	ASP-A-009	TH-228	1.295995	0.231766	0.279732	0.115635	0.043944	pCi	g	ARS1-B10-01952	0.36571	1						
ARS1-B10-01952-06	TLS-SB-IA5-B02 (7.0-8.0)031010	ARS1-10-00560-019	ASP-A-009	TH-228	0.7739	0.144468	0.172103	0.073621	0.027798	pCi	g	ARS1-B10-01952	0.56802	1						
ARS1-B10-01952-07	TLS-SB-IA5-B02 (8.0-9.0)031010	ARS1-10-00560-020	ASP-A-009	TH-228	0.537622	0.125692	0.141494	0.087069	0.034263	pCi	g	ARS1-B10-01952	0.56934	1						
ARS1-B10-01952-16	TLS-SB-IA5-B03 (13.5-14.5)031010	ARS1-10-00560-029	ASP-A-009	TH-228	0.341384	0.086855	0.096157	0.066151	0.026295	pCi	g	ARS1-B10-01952	0.78404	1						
ARS1-B10-01952-14	TLS-SB-IA5-B03 (3.0-4.0)031010	ARS1-10-00560-027	ASP-A-009	TH-228	0.852441	0.174814	0.202915	0.097745	0.037033	pCi	g	ARS1-B10-01952	0.44421	1						
ARS1-B10-01952-15	TLS-SB-IA5-B03 (4.0-5.0)031010	ARS1-10-00560-028	ASP-A-009	TH-228	1.019119	0.226513	0.257836	0.164179	0.066505	pCi	g	ARS1-B10-01952	0.35358	1						
ARS1-B10-01952-10	TLS-SB-IA6-B01 (13.3-14.0)031010	ARS1-10-00560-023	ASP-A-009	TH-228	0.392309	0.102995	0.113385	0.068726	0.025666	pCi	g	ARS1-B10-01952	0.60798	1						
ARS1-B10-01952-11	TLS-SB-IA6-B01 (16.9-18.0)031010	ARS1-10-00560-024	ASP-A-009	TH-228	0.583844	0.107605	0.128678	0.049577	0.018074	pCi	g	ARS1-B10-01952	0.81003	1						
ARS1-B10-01952-12	TLS-SB-IA6-B01 (21.0-22.0)031010	ARS1-10-00560-025	ASP-A-009	TH-228	0.876914	0.150402	0.183993	0.08026	0.031602	pCi	g	ARS1-B10-01952	0.59355	1						
ARS1-B10-01952-21	TLS-SS-IA4-B05 (0.3-0.8)031010	ARS1-10-00560-034	ASP-A-009	TH-228	0.858679	0.181356	0.208951	0.103139	0.038944	pCi	g	ARS1-B10-01952	0.42395	1						
ARS1-B10-01952-17	TLS-SS-IA5-B01 (0.8-1.3)031010	ARS1-10-00560-030	ASP-A-009	TH-228	0.626998	0.149685	0.167774	0.100061	0.038617	pCi	g	ARS1-B10-01952	0.44685	1						
ARS1-B10-01952-08	TLS-SS-IA6-B01 (0.4-0.9)031010	ARS1-10-00560-021	ASP-A-009	TH-228	0.587324	0.164142	0.178834	0.130753	0.051453	pCi	g	ARS1-B10-01952	0.37597	1						
ARS1-B10-01952-04	TLS-SS-IA4-8 (1.3-1.8) 03011	ARS1-10-00469-001	ASP-A-009	TH-230	0.847667	0.199751	0.224492	0.083441	0.025502	pCi	g	ARS1-B10-01952	0.33167	1						
ARS1-B10-01952-22	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	ASP-A-009	TH-230	1.364247	0.231768	0.284434	0.086985	0.029934	pCi	g	ARS1-B10-01952	0.3695	1						
ARS1-B10-01952-23	TLS-SB-IA4-B05 (3.0-4.0)031010	ARS1-10-00560-036	ASP-A-009	TH-230	0.758125	0.113857	0.146147	0.023884	0.005934	pCi	g	ARS1-B10-01952	0.82252	1						
ARS1-B10-01952-18	TLS-SB-IA5-B01 (2.0-3.0)031010	ARS1-10-00560-031	ASP-A-009	TH-230	0.656433	0.145095	0.165369	0.065119	0.021603	pCi	g	ARS1-B10-01952	0.4652	1						
ARS1-B10-01952-19	TLS-SB-IA5-B01 (3.0-4.0)031010	ARS1-10-00560-032	ASP-A-009	TH-230	0.685319	0.139547	0.162277	0.050662	0.015484	pCi	g	ARS1-B10-01952	0.552	1						
ARS1-B10-01952-20	TLS-SB-IA5-B01 (4.0-5.0)031010	ARS1-10-00560-033	ASP-A-009	TH-230	0.987597	0.169707	0.207479	0.05993	0.019879	pCi	g	ARS1-B10-01952	0.48383	1						
ARS1-B10-01952-05	TLS-SB-IA5-B02 (3.0-4.0)031010	ARS1-10-00560-018	ASP-A-009	TH-230	1.077017	0.204204	0.242164	0.079239	0.026284	pCi	g	ARS1-B10-01952	0.36571	1						
ARS1-B10-01952-06	TLS-SB-IA5-B02 (7.0-8.0)031010	ARS1-10-00560-019	ASP-A-009	TH-230	0.767785	0.138072	0.166358	0.04147	0.012072	pCi	g	ARS1-B10-01952	0.56802	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01952-07	TLS-SB-IA5-B02 (8.0-9.0)03101C	ARS1-10-00560-020	ASP-A-009	TH-230	0.773944	0.140208	0.168547	0.035416	0.008799	pCi	g	ARS1-B10-01952	0.56934	1						
ARS1-B10-01952-16	TLS-SB-IA5-B03 (13.5-14.5)03101C	ARS1-10-00560-029	ASP-A-009	TH-230	0.428365	0.089605	0.103487	0.031037	0.009002	pCi	g	ARS1-B10-01952	0.78404	1						
ARS1-B10-01952-14	TLS-SB-IA5-B03 (3.0-4.0)03101C	ARS1-10-00560-027	ASP-A-009	TH-230	1.130661	0.192387	0.23598	0.061641	0.019442	pCi	g	ARS1-B10-01952	0.44421	1						
ARS1-B10-01952-15	TLS-SB-IA5-B03 (4.0-5.0)03101C	ARS1-10-00560-028	ASP-A-009	TH-230	0.798967	0.187534	0.210935	0.089059	0.029551	pCi	g	ARS1-B10-01952	0.35358	1						
ARS1-B10-01952-10	TLS-SB-IA6-B01 (13.3-14.0)03101C	ARS1-10-00560-023	ASP-A-009	TH-230	0.429044	0.100948	0.113488	0.025223	0.004255	pCi	g	ARS1-B10-01952	0.60798	1						
ARS1-B10-01952-11	TLS-SB-IA6-B01 (16.9-18.0)03101C	ARS1-10-00560-024	ASP-A-009	TH-230	0.670357	0.111774	0.138049	0.038376	0.012736	pCi	g	ARS1-B10-01952	0.81003	1						
ARS1-B10-01952-12	TLS-SB-IA6-B01 (21.0-22.0)03101C	ARS1-10-00560-025	ASP-A-009	TH-230	0.909706	0.146126	0.182869	0.041101	0.012356	pCi	g	ARS1-B10-01952	0.59355	1						
ARS1-B10-01952-21	TLS-SS-IA4-B05 (0.3-0.8)03101C	ARS1-10-00560-034	ASP-A-009	TH-230	0.950163	0.181924	0.215137	0.058093	0.016911	pCi	g	ARS1-B10-01952	0.42395	1						
ARS1-B10-01952-17	TLS-SS-IA5-B01 (0.8-1.3)03101C	ARS1-10-00560-030	ASP-A-009	TH-230	0.649558	0.143292	0.163389	0.052529	0.015295	pCi	g	ARS1-B10-01952	0.44685	1						
ARS1-B10-01952-08	TLS-SS-IA6-B01 (0.4-0.9)03101C	ARS1-10-00560-021	ASP-A-009	TH-230	0.340521	0.114638	0.121802	0.053097	0.013192	pCi	g	ARS1-B10-01952	0.37597	1						
ARS1-B10-01952-04	TLS-SS-IA4-8 (1.3-1.8) 03011C	ARS1-10-00469-001	ASP-A-009	TH-232	0.765109	0.189388	0.210758	0.078556	0.023092	pCi	g	ARS1-B10-01952	0.33167	1						
ARS1-B10-01952-22	TLS-SB-IA4-B05 (1.0-2.0)03101C	ARS1-10-00560-035	ASP-A-009	TH-232	0.56232	0.150902	0.1655	0.085165	0.029051	pCi	g	ARS1-B10-01952	0.3695	1						
ARS1-B10-01952-23	TLS-SB-IA4-B05 (3.0-4.0)03101C	ARS1-10-00560-036	ASP-A-009	TH-232	0.642175	0.10485	0.13045	0.026705	0.007357	pCi	g	ARS1-B10-01952	0.82252	1						
ARS1-B10-01952-18	TLS-SB-IA5-B01 (2.0-3.0)03101C	ARS1-10-00560-031	ASP-A-009	TH-232	0.533063	0.13109	0.146066	0.064989	0.02156	pCi	g	ARS1-B10-01952	0.4652	1						
ARS1-B10-01952-19	TLS-SB-IA5-B01 (3.0-4.0)03101C	ARS1-10-00560-032	ASP-A-009	TH-232	0.719973	0.142616	0.167066	0.047696	0.01402	pCi	g	ARS1-B10-01952	0.552	1						
ARS1-B10-01952-20	TLS-SB-IA5-B01 (4.0-5.0)03101C	ARS1-10-00560-033	ASP-A-009	TH-232	0.748039	0.146582	0.172221	0.03997	0.00992	pCi	g	ARS1-B10-01952	0.48383	1						
ARS1-B10-01952-05	TLS-SB-IA5-B02 (3.0-4.0)03101C	ARS1-10-00560-018	ASP-A-009	TH-232	0.857211	0.180521	0.208138	0.052849	0.013116	pCi	g	ARS1-B10-01952	0.36571	1						
ARS1-B10-01952-06	TLS-SB-IA5-B02 (7.0-8.0)03101C	ARS1-10-00560-019	ASP-A-009	TH-232	0.744524	0.136229	0.163264	0.046803	0.014756	pCi	g	ARS1-B10-01952	0.56802	1						
ARS1-B10-01952-07	TLS-SB-IA5-B02 (8.0-9.0)03101C	ARS1-10-00560-020	ASP-A-009	TH-232	0.724523	0.135766	0.161556	0.0396	0.010909	pCi	g	ARS1-B10-01952	0.56934	1						
ARS1-B10-01952-16	TLS-SB-IA5-B03 (13.5-14.5)03101C	ARS1-10-00560-029	ASP-A-009	TH-232	0.327585	0.078093	0.087556	0.025835	0.006414	pCi	g	ARS1-B10-01952	0.78404	1						
ARS1-B10-01952-14	TLS-SB-IA5-B03 (3.0-4.0)03101C	ARS1-10-00560-027	ASP-A-009	TH-232	0.808021	0.161844	0.189025	0.045117	0.011202	pCi	g	ARS1-B10-01952	0.44421	1						
ARS1-B10-01952-15	TLS-SB-IA5-B03 (4.0-5.0)03101C	ARS1-10-00560-028	ASP-A-009	TH-232	0.900654	0.19773	0.225713	0.080978	0.02554	pCi	g	ARS1-B10-01952	0.35358	1						
ARS1-B10-01952-10	TLS-SB-IA6-B01 (13.3-14.0)03101C	ARS1-10-00560-023	ASP-A-009	TH-232	0.468171	0.105213	0.119463	0.01668	0	pCi	g	ARS1-B10-01952	0.60798	1						
ARS1-B10-01952-11	TLS-SB-IA6-B01 (16.9-18.0)03101C	ARS1-10-00560-024	ASP-A-009	TH-232	0.579781	0.103853	0.125282	0.036642	0.011882	pCi	g	ARS1-B10-01952	0.81003	1						
ARS1-B10-01952-12	TLS-SB-IA6-B01 (21.0-22.0)03101C	ARS1-10-00560-025	ASP-A-009	TH-232	0.709093	0.128586	0.154529	0.032493	0.008068	pCi	g	ARS1-B10-01952	0.59355	1						
ARS1-B10-01952-21	TLS-SS-IA4-B05 (0.3-0.8)03101C	ARS1-10-00560-034	ASP-A-009	TH-232	0.812364	0.16882	0.195294	0.065564	0.020671	pCi	g	ARS1-B10-01952	0.42395	1						
ARS1-B10-01952-17	TLS-SS-IA5-B01 (0.8-1.3)03101C	ARS1-10-00560-030	ASP-A-009	TH-232	0.552622	0.134084	0.149798	0.070165	0.024135	pCi	g	ARS1-B10-01952	0.44685	1						
ARS1-B10-01952-08	TLS-SS-IA6-B01 (0.4-0.9)03101C	ARS1-10-00560-021	ASP-A-009	TH-232	0.492496	0.137812	0.150117	0.059369	0.016355	pCi	g	ARS1-B10-01952	0.37597	1						
ARS1-B10-01953-06	TLS-SB-IA1-20 (1.6-2.6)03101C	ARS1-10-00560-039	ASP-A-009	TH-228	2.686582	0.263227	0.417995	0.078209	0.030177	pCi	g	ARS1-B10-01953	0.60313	1						
ARS1-B10-01953-07	TLS-SB-IA1-20 (3.3-4.0)03101C	ARS1-10-00560-040	ASP-A-009	TH-228	0.87119	0.124204	0.162828	0.050308	0.019119	pCi	g	ARS1-B10-01953	0.79037	1						
ARS1-B10-01953-08	TLS-SB-IA1-20 (4.8-5.8)03101C	ARS1-10-00560-041	ASP-A-009	TH-228	0.770454	0.137511	0.166073	0.067289	0.025407	pCi	g	ARS1-B10-01953	0.58233	1						
ARS1-B10-01953-09	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	ASP-A-009	TH-228	0.730131	0.12437	0.152495	0.056627	0.021148	pCi	g	ARS1-B10-01953	0.69778	1						
ARS1-B10-01953-10	TLS-SB-IA1-20 (6.8-8.0)03101C	ARS1-10-00560-043	ASP-A-009	TH-228	0.683203	0.125718	0.15041	0.057838	0.021085	pCi	g	ARS1-B10-01953	0.67566	1						
ARS1-B10-01953-12	TLS-SB-IA1-8 (3.0-4.0)03101C	ARS1-10-00560-045	ASP-A-009	TH-228	0.850873	0.127725	0.163979	0.049766	0.018318	pCi	g	ARS1-B10-01953	0.75498	1						
ARS1-B10-01953-13	TLS-SB-IA1-8 (4.7-5.7)03101C	ARS1-10-00560-046	ASP-A-009	TH-228	0.892455	0.165823	0.197817	0.084926	0.032176	pCi	g	ARS1-B10-01953	0.48849	1						
ARS1-B10-01953-04	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	ASP-A-009	TH-228	0.885463	0.131417	0.16948	0.057843	0.022324	pCi	g	ARS1-B10-01953	0.76029	1						
ARS1-B10-01953-05	TLS-SS-IA1-20 (1.1-1.6)03101C	ARS1-10-00560-038	ASP-A-009	TH-228	1.535933	0.179527	0.258244	0.052567	0.019	pCi	g	ARS1-B10-01953	0.70734	1						
ARS1-B10-01953-11	TLS-SS-IA1-8 (1.5-2.0)03101C	ARS1-10-00560-044	ASP-A-009	TH-228	0.702031	0.12972	0.155005	0.073884	0.029091	pCi	g	ARS1-B10-01953	0.62065	1						
ARS1-B10-01953-22	TLS-SB-IA3-BO1 (11.5-12.5)031110	ARS1-10-00576-005	ASP-A-009	TH-228	0.582962	0.099157	0.12164	0.053419	0.021145	pCi	g	ARS1-B10-01953	0.91865	1						
ARS1-B10-01953-19	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	ASP-A-009	TH-228	0.940887	0.146615	0.185546	0.064502	0.024513	pCi	g	ARS1-B10-01953	0.6515	1						
ARS1-B10-01953-20	TLS-SB-IA3-BO1 (5.0-6.0)03111C	ARS1-10-00576-003	ASP-A-009	TH-228	0.891992	0.182232	0.211733	0.100647	0.038003	pCi	g	ARS1-B10-01953	0.43483	1						
ARS1-B10-01953-21	TLS-SB-IA3-BO1 (9.0-10.0)031110	ARS1-10-00576-004	ASP-A-009	TH-228	0.619178	0.096676	0.122256	0.049933	0.019965	pCi	g	ARS1-B10-01953	0.99778	1						
ARS1-B10-01953-18	TLS-SS-IA3-BO1 (1.8-2.3)03111C	ARS1-10-00576-001	ASP-A-009	TH-228	1.020698	0.137964	0.185074	0.055643	0.02147	pCi	g	ARS1-B10-01953	0.76132	1						
ARS1-B10-01953-23	TLS-SS-IA3-BO2 (2.3-2.8)03111C	ARS1-10-00576-006	ASP-A-009	TH-228	0.804145	0.117891	0.152788	0.054539	0.02146	pCi	g	ARS1-B10-01953	0.88467	1						
ARS1-B10-01953-06	TLS-SB-IA1-20 (1.6-2.6)03101C	ARS1-10-00560-039	ASP-A-009	TH-230	4.057226	0.314406	0.582497	0.044097	0.013477	pCi	g	ARS1-B10-01953	0.60313	1						
ARS1-B10-01953-07	TLS-SB-IA1-20 (3.3-4.0)03101C	ARS1-10-00560-040	ASP-A-009	TH-230	0.867224	0.12014	0.159435	0.034435	0.011422	pCi	g	ARS1-B10-01953	0.79037	1						
ARS1-B10-01953-08	TLS-SB-IA1-20 (4.8-5.8)03101C	ARS1-10-00560-041	ASP-A-009	TH-230	0.702628	0.126204	0.152115	0.037862	0.011022	pCi	g	ARS1-B10-01953	0.58233	1						
ARS1-B10-01953-09	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	ASP-A-009	TH-230	0.72038	0.118593	0.147121	0.020759	0.003502	pCi	g	ARS1-B10-01953	0.69778	1						
ARS1-B10-01953-10	TLS-SB-IA1-20 (6.8-8.0)03101C	ARS1-10-00560-043	ASP-A-009	TH-230	0.525921	0.107351	0.124758	0.044721	0.014841	pCi	g	ARS1-B10-01953	0.67566	1						
ARS1-B10-01953-12	TLS-SB-IA1-8 (3.0-4.0)03101C	ARS1-10-00560-045	ASP-A-009	TH-230	1.239598	0.149372	0.21156	0.034138	0.010767	pCi	g	ARS1-B10-01953	0.75498	1						
ARS1-B10-01953-13	TLS-SB-IA1-8 (4.7-5.7)03101C	ARS1-10-00560-046	ASP-A-009	TH-230	0.962793	0.165399	0.202231	0.053489	0.01687	pCi	g	ARS1-B10-01953	0.48849	1						
ARS1-B10-01953-04	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	ASP-A-009	TH-230	1.071616	0.139134	0.190086	0.030338	0.008834	pCi	g	ARS1-B10-01953	0.76029	1						
ARS1-B10-01953-05	TLS-SS-IA1-20 (1.1-1.6)03101C	ARS1-10-00560-038	ASP-A-009	TH-230	4.135085	0.286806	0.576217	0.041567	0.01379	pCi	g	ARS1-B10-01953	0.70734	1						
ARS1-B10-01953-11	TLS-SS-IA1-8 (1.5-2.0)03101C	ARS1-10-00560-044	ASP-A-009	TH-230	0.937705	0.142189	0.181829	0.037796	0.011362	pCi	g	ARS1-B10-01953	0.62065	1						
ARS1-B10-01953-22	TLS-SB-IA3-BO1 (11.5-12.5)031110	ARS1-10-00576-005	ASP-A-009	TH-230	0.615936	0.097274	0.12249	0.029886	0.009599	pCi	g	ARS1-B10-01953	0.91865	1						
ARS1-B10-01953-19	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	ASP-A-009	TH-230	0.887932	0.137906	0.174742	0.044171	0.014652	pCi	g	ARS1-B10-01953	0.6515	1						
ARS1-B10-01953-20	TLS-SB-IA3-BO1 (5.0-6.0)03111C	ARS1-10-00576-003	ASP-A-009	TH-230	0.996541	0.183914	0.219843	0.056657	0.016493	pCi	g	ARS1-B10-01953	0.43483	1						
ARS1-B10-01953-21	TLS-SB-IA3-BO1 (9.0-10.0)031110	ARS1-10-00576-004	ASP-A-009	TH-230	0.671137	0.095765	0.125501	0.019091	0.004743	pCi	g	ARS1-B10-01953	0.99778	1						
ARS1-B10-01953-18	TLS-SS-IA3-BO1 (1.8-2.3)03111C	ARS1-10-00576-001	ASP-A-009	TH-230	1.093315	0.137992	0.191056	0.031388	0.009593	pCi	g	ARS1-B10-01953	0.76132	1						
ARS1-B10-01953-23	TLS-SS-IA3-BO2 (2.3-2.8)03111C	ARS1-10-00576-006	ASP-A-009	TH-230	0.897401	0.120036	0.161779	0.035788	0.012316	pCi	g	ARS1-B10-01953	0.88467	1						
ARS1-B10-01953-06	TLS-SB-IA1-20 (1.6-2.6)03101C	ARS1-10-00560-039	ASP-A-009	TH-232	2.552437	0.249225	0.396584	0.041516	0.012204	pCi	g	ARS1-B10-01953	0.60313	1						
ARS1-B10-01953-07	TLS-SB-IA1-20 (3.3-4.0)03101C	ARS1-10-00560-040	ASP-A-009	TH-232	0.890416	0.121022	0.161949	0.022967	0.0057	pCi	g	ARS1-B10-01953	0.79037	1						
ARS1-B10-01953-08	TLS-SB-IA1-20 (4.8-5.8)03101C	ARS1-10-00560-041	ASP-A-009	TH-232	0.706333	0.126744	0.152813	0.04273	0.013472	pCi	g	ARS1-B10-01953	0.58233	1						
ARS1-B10-01953-09	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	ASP-A-009	TH-232	0.614839	0.109384	0.132238	0.013728	0	pCi	g	ARS1-B10-01953	0.69778	1						
ARS1-B10-01953-10	TLS-SB-IA1-20 (6.8-8.0)03101C	ARS1-10-00560-043	ASP-A-009	TH-232	0.541173	0.108562	0.126743	0.0427	0.013846	pCi	g	ARS1-B10-01953	0.67566	1						
ARS1-B10-01953-12	TLS-SB-IA1-8 (3.0-4.0)03101C	ARS1-10-00560-045	ASP-A-009	TH-232	0.84646	0.123298	0.160213	0.030126	0.008774	pCi	g	ARS1-B10-01953	0.75498	1						
ARS1-B10-01953-13	TLS-SB-IA1-8 (4.7-5.7)03101C	ARS1-10-00560-046	ASP-A-009	TH-232	0.662825	0.136573	0.158335	0.03915	0.009721	pCi	g	ARS1-B10-01953	0.48849	1						
ARS1-B10-01953-04	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	ASP-A-009	TH-232	0.622227	0.106909	0.130709	0.040524	0.013939	pCi	g	ARS1-B10-01953	0.76029	1						
ARS1-B10-01953-05	TLS-SS-IA1-20 (1.1-1.6)03101C	ARS1-10-00560-038	ASP-A-009	TH-232	1.363876	0.165096	0.233299	0.041484	0.013762	pCi	g	ARS1-B10-01953	0.70734	1						
ARS1-B10-01953-11	TLS-SS-IA1-8 (1.5-2.0)03101C	ARS1-10-00560-044	ASP-A-009	TH-232	0.483874	0.101959	0.11754	0.02988	0.007419	pCi	g	ARS1-B10-01953	0.62065	1						
ARS1-B10-01953-22	TLS-SB-IA3-BO1 (11.5-12.5)031110	ARS1-10-00576-005	ASP-A-009	TH-232	0.526654	0.089532	0.109852	0.022906	0.00612	pCi	g	ARS1-B10-01953	0.91865	1						
ARS1-B10-01953-19	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	ASP-A-009	TH-232	0.832661	0.132624	0.166483	0.02946	0.007311	pCi	g	ARS1-B10-01953	0.6515	1						
ARS1-B10-01953-20	TLS-SB-IA3-BO1 (5.0-6.0)03111C	ARS1-10-00576-003	ASP-A-009	TH-232	1.06947	0.190763	0.230429	0.063942	0.02016	pCi	g	ARS1-B10-01953	0.43483	1						
ARS1-B10-01953-21	TLS-SB-IA3-BO1 (9.0-10.0)031110	ARS1-10-00576-004	ASP-A-009	TH-232	0.647906	0.093835	0.122217	0.009587	0	pCi	g	ARS1-B10-01953	0.99778	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01953-18	TLS-SS-IA3-BO1 (1.8-2.3)03111C	ARS1-10-00576-001	ASP-A-009	TH-232	0.909335	0.125716	0.166983	0.029551	0.008687	pCi	g	ARS1-B10-01953	0.76132	1						
ARS1-B10-01953-23	TLS-SS-IA3-BO2 (2.3-2.8)03111C	ARS1-10-00576-006	ASP-A-009	TH-232	0.585396	0.097175	0.120203	0.03504	0.011952	pCi	g	ARS1-B10-01953	0.88467	1						
ARS1-B10-01954-22	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	ASP-A-009	TH-228	0.652282	0.120547	0.144036	0.068668	0.027037	pCi	g	ARS1-B10-01954	0.6882	1						
ARS1-B10-01954-21	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	ASP-A-009	TH-228	0.796989	0.129287	0.161225	0.052892	0.019282	pCi	g	ARS1-B10-01954	0.72018	1						
ARS1-B10-01954-04	TLS-SB-IA3-BO2 (3.0-4.0)03111C	ARS1-10-00576-007	ASP-A-009	TH-228	0.635665	0.124686	0.146455	0.064554	0.024108	pCi	g	ARS1-B10-01954	0.63781	1						
ARS1-B10-01954-05	TLS-SB-IA3-BO2 (5.0-6.0)03111C	ARS1-10-00576-008	ASP-A-009	TH-228	0.789686	0.138707	0.168371	0.061122	0.022282	pCi	g	ARS1-B10-01954	0.65514	1						
ARS1-B10-01954-06	TLS-SB-IA3-BO2 (7.0-8.0)03111C	ARS1-10-00576-009	ASP-A-009	TH-228	0.576462	0.097392	0.119747	0.051285	0.020193	pCi	g	ARS1-B10-01954	0.92606	1						
ARS1-B10-01954-07	TLS-SB-IA3-BO2 (9.0-10.0)031110	ARS1-10-00576-010	ASP-A-009	TH-228	0.544606	0.096313	0.116656	0.043735	0.016098	pCi	g	ARS1-B10-01954	0.89326	1						
ARS1-B10-01954-11	TLS-SB-IA3-BO5 (13.0-14.0)031110	ARS1-10-00576-014	ASP-A-009	TH-228	0.771063	0.129665	0.159679	0.063959	0.024684	pCi	g	ARS1-B10-01954	0.68875	1						
ARS1-B10-01954-12	TLS-SB-IA3-BO5 (14.0-15.0)03111C	ARS1-10-00576-015	ASP-A-009	TH-228	0.792384	0.129036	0.160691	0.051885	0.018753	pCi	g	ARS1-B10-01954	0.73051	1						
ARS1-B10-01954-09	TLS-SB-IA3-BO5 (3.0-4.0)03111C	ARS1-10-00576-012	ASP-A-009	TH-228	0.917616	0.172562	0.205128	0.10931	0.044279	pCi	g	ARS1-B10-01954	0.53977	1						
ARS1-B10-01954-10	TLS-SB-IA3-BO5 (4.0-5.0)03111C	ARS1-10-00576-013	ASP-A-009	TH-228	0.750882	0.15948	0.183493	0.105189	0.041813	pCi	g	ARS1-B10-01954	0.48711	1						
ARS1-B10-01954-14	TLS-SB-IA3-D12 (2.0-3.0)03111C	ARS1-10-00576-017	ASP-A-009	TH-228	0.858039	0.139921	0.174162	0.064187	0.024393	pCi	g	ARS1-B10-01954	0.66212	1						
ARS1-B10-01954-16	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	ASP-A-009	TH-228	0.923899	0.143318	0.181682	0.069799	0.027467	pCi	g	ARS1-B10-01954	0.70627	1						
ARS1-B10-01954-17	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	ASP-A-009	TH-228	0.725285	0.128557	0.155598	0.074174	0.029657	pCi	g	ARS1-B10-01954	0.68495	1						
ARS1-B10-01954-08	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	ASP-A-009	TH-228	1.412075	0.199186	0.2623	0.079185	0.030001	pCi	g	ARS1-B10-01954	0.5054	1						
ARS1-B10-01954-13	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	ASP-A-009	TH-228	0.944918	0.135718	0.177374	0.057917	0.022348	pCi	g	ARS1-B10-01954	0.81687	1						
ARS1-B10-01954-22	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	ASP-A-009	TH-230	0.625793	0.112242	0.135347	0.035165	0.010571	pCi	g	ARS1-B10-01954	0.6882	1						
ARS1-B10-01954-21	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	ASP-A-009	TH-230	0.775437	0.124081	0.155497	0.040942	0.013587	pCi	g	ARS1-B10-01954	0.72018	1						
ARS1-B10-01954-04	TLS-SB-IA3-BO2 (3.0-4.0)03111C	ARS1-10-00576-007	ASP-A-009	TH-230	0.946371	0.145249	0.184878	0.023708	0.003999	pCi	g	ARS1-B10-01954	0.63781	1						
ARS1-B10-01954-05	TLS-SB-IA3-BO2 (5.0-6.0)03111C	ARS1-10-00576-008	ASP-A-009	TH-230	0.967391	0.148941	0.18935	0.047345	0.015712	pCi	g	ARS1-B10-01954	0.65514	1						
ARS1-B10-01954-06	TLS-SB-IA3-BO2 (7.0-8.0)03111C	ARS1-10-00576-009	ASP-A-009	TH-230	0.621465	0.096546	0.122322	0.026281	0.0079	pCi	g	ARS1-B10-01954	0.92606	1						
ARS1-B10-01954-07	TLS-SB-IA3-BO2 (9.0-10.0)031110	ARS1-10-00576-010	ASP-A-009	TH-230	0.601366	0.097909	0.121937	0.030053	0.009479	pCi	g	ARS1-B10-01954	0.89326	1						
ARS1-B10-01954-11	TLS-SB-IA3-BO5 (13.0-14.0)031110	ARS1-10-00576-014	ASP-A-009	TH-230	0.963401	0.13891	0.181255	0.033592	0.009781	pCi	g	ARS1-B10-01954	0.68875	1						
ARS1-B10-01954-12	TLS-SB-IA3-BO5 (14.0-15.0)03111C	ARS1-10-00576-015	ASP-A-009	TH-230	0.665915	0.115391	0.140686	0.041088	0.013631	pCi	g	ARS1-B10-01954	0.73051	1						
ARS1-B10-01954-09	TLS-SB-IA3-BO5 (3.0-4.0)03111C	ARS1-10-00576-012	ASP-A-009	TH-230	1.039584	0.17308	0.213877	0.059322	0.019684	pCi	g	ARS1-B10-01954	0.53977	1						
ARS1-B10-01954-10	TLS-SB-IA3-BO5 (4.0-5.0)03111C	ARS1-10-00576-013	ASP-A-009	TH-230	0.842424	0.158275	0.188195	0.049376	0.014321	pCi	g	ARS1-B10-01954	0.48711	1						
ARS1-B10-01954-14	TLS-SB-IA3-D12 (2.0-3.0)03111C	ARS1-10-00576-017	ASP-A-009	TH-230	1.01295	0.146862	0.191197	0.044001	0.014595	pCi	g	ARS1-B10-01954	0.66212	1						
ARS1-B10-01954-16	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	ASP-A-009	TH-230	0.935896	0.137923	0.178374	0.028394	0.007054	pCi	g	ARS1-B10-01954	0.70627	1						
ARS1-B10-01954-17	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	ASP-A-009	TH-230	0.656286	0.115568	0.140169	0.028381	0.00705	pCi	g	ARS1-B10-01954	0.68495	1						
ARS1-B10-01954-08	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	ASP-A-009	TH-230	1.641126	0.207996	0.287409	0.049959	0.015757	pCi	g	ARS1-B10-01954	0.5054	1						
ARS1-B10-01954-13	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	ASP-A-009	TH-230	0.83704	0.1234	0.159568	0.032705	0.009996	pCi	g	ARS1-B10-01954	0.81687	1						
ARS1-B10-01954-22	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	ASP-A-009	TH-232	0.595941	0.109042	0.130682	0.0278	0.006903	pCi	g	ARS1-B10-01954	0.6882	1						
ARS1-B10-01954-21	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	ASP-A-009	TH-232	0.968936	0.138205	0.181147	0.039092	0.012676	pCi	g	ARS1-B10-01954	0.72018	1						
ARS1-B10-01954-04	TLS-SB-IA3-BO2 (3.0-4.0)03111C	ARS1-10-00576-007	ASP-A-009	TH-232	1.81606	0.2009	0.297551	0.015678	0	pCi	g	ARS1-B10-01954	0.63781	1						
ARS1-B10-01954-05	TLS-SB-IA3-BO2 (5.0-6.0)03111C	ARS1-10-00576-008	ASP-A-009	TH-232	0.948379	0.147194	0.186558	0.045206	0.014659	pCi	g	ARS1-B10-01954	0.65514	1						
ARS1-B10-01954-06	TLS-SB-IA3-BO2 (7.0-8.0)03111C	ARS1-10-00576-009	ASP-A-009	TH-232	0.478642	0.084465	0.102376	0.020777	0.005159	pCi	g	ARS1-B10-01954	0.92606	1						
ARS1-B10-01954-07	TLS-SB-IA3-BO2 (9.0-10.0)031110	ARS1-10-00576-010	ASP-A-009	TH-232	1.279379	0.142011	0.209944	0.026521	0.007724	pCi	g	ARS1-B10-01954	0.89326	1						
ARS1-B10-01954-11	TLS-SB-IA3-BO5 (13.0-14.0)031110	ARS1-10-00576-014	ASP-A-009	TH-232	0.557002	0.106741	0.126197	0.044871	0.015435	pCi	g	ARS1-B10-01954	0.68875	1						
ARS1-B10-01954-12	TLS-SB-IA3-BO5 (14.0-15.0)031110	ARS1-10-00576-015	ASP-A-009	TH-232	0.751095	0.122287	0.152298	0.041006	0.013604	pCi	g	ARS1-B10-01954	0.73051	1						
ARS1-B10-01954-09	TLS-SB-IA3-BO5 (3.0-4.0)03111C	ARS1-10-00576-012	ASP-A-009	TH-232	0.967795	0.16653	0.203503	0.05394	0.017012	pCi	g	ARS1-B10-01954	0.53977	1						
ARS1-B10-01954-10	TLS-SB-IA3-BO5 (4.0-5.0)03111C	ARS1-10-00576-013	ASP-A-009	TH-232	0.735597	0.147393	0.17213	0.0411	0.010204	pCi	g	ARS1-B10-01954	0.48711	1						
ARS1-B10-01954-14	TLS-SB-IA3-D12 (2.0-3.0)03111C	ARS1-10-00576-017	ASP-A-009	TH-232	1.047204	0.148379	0.195026	0.029347	0.007283	pCi	g	ARS1-B10-01954	0.66212	1						
ARS1-B10-01954-16	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	ASP-A-009	TH-232	0.884758	0.134124	0.171534	0.031749	0.008746	pCi	g	ARS1-B10-01954	0.70627	1						
ARS1-B10-01954-17	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	ASP-A-009	TH-232	0.653776	0.114926	0.139469	0.014252	0	pCi	g	ARS1-B10-01954	0.68495	1						
ARS1-B10-01954-08	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	ASP-A-009	TH-232	1.316087	0.185633	0.24446	0.036566	0.009079	pCi	g	ARS1-B10-01954	0.5054	1						
ARS1-B10-01954-13	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	ASP-A-009	TH-232	0.860038	0.124842	0.16245	0.03079	0.009051	pCi	g	ARS1-B10-01954	0.81687	1						
ARS1-B10-02002-08	TLS-SB-IA3FL-1 (3.4-4.4)03051C	ARS1-10-00493-017	ASP-A-009	TH-228	0.921314	0.23253	0.257816	0.162695	0.06279	pCi	g	ARS1-B10-02002	0.28137	1						
ARS1-B10-02002-06	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	ASP-A-009	TH-228	0.640658	0.147933	0.166972	0.110446	0.044739	pCi	g	ARS1-B10-02002	0.53598	1						
ARS1-B10-02002-04	TLS-SB-IA3FL-3 (10.8-11.8)03041C	ARS1-10-00492-020	ASP-A-009	TH-228	0.688629	0.118877	0.145116	0.052788	0.01943	pCi	g	ARS1-B10-02002	0.76526	1						
ARS1-B10-02002-05	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	ASP-A-009	TH-228	0.64561	0.119919	0.14307	0.061399	0.023263	pCi	g	ARS1-B10-02002	0.71244	1						
ARS1-B10-02002-09	TLS-SB-IA3FL-10 (2.0-3.0)03051C	ARS1-10-00493-023	ASP-A-009	TH-228	0.877619	0.14236	0.177531	0.057034	0.020614	pCi	g	ARS1-B10-02002	0.68179	1						
ARS1-B10-02002-10	TLS-SB-IA3FL-8 (3.0-4.0)03051C	ARS1-10-00493-029	ASP-A-009	TH-228	1.009067	0.17249	0.211249	0.086293	0.033297	pCi	g	ARS1-B10-02002	0.57538	1						
ARS1-B10-02002-14	TLS-SB-IA1-15 (19.0-20.0)031110	ARS1-10-00576-030	ASP-A-009	TH-228	1.453071	0.179764	0.251311	0.075198	0.030066	pCi	g	ARS1-B10-02002	0.71472	1						
ARS1-B10-02002-22	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	ASP-A-009	TH-228	1.04844	0.196468	0.233787	0.124088	0.050265	pCi	g	ARS1-B10-02002	0.47542	1						
ARS1-B10-02002-23	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	ASP-A-009	TH-228	0.68487	0.119755	0.145578	0.067002	0.026634	pCi	g	ARS1-B10-02002	0.77609	1						
ARS1-B10-02002-19	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	ASP-A-009	TH-228	0.522823	0.124346	0.13948	0.087475	0.034442	pCi	g	ARS1-B10-02002	0.546	1						
ARS1-B10-02002-16	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	ASP-A-009	TH-228	0.874549	0.13216	0.169229	0.062846	0.024729	pCi	g	ARS1-B10-02002	0.78353	1						
ARS1-B10-02002-17	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	ASP-A-009	TH-228	0.6982	0.131602	0.156332	0.065727	0.024546	pCi	g	ARS1-B10-02002	0.63875	1						
ARS1-B10-02002-18	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	ASP-A-009	TH-228	0.700594	0.119433	0.146403	0.051184	0.018659	pCi	g	ARS1-B10-02002	0.76213	1						
ARS1-B10-02002-20	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	ASP-A-009	TH-228	1.02483	0.161467	0.203503	0.065844	0.024236	pCi	g	ARS1-B10-02002	0.59855	1						
ARS1-B10-02002-15	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	ASP-A-009	TH-228	0.67616	0.10657	0.134297	0.053664	0.021242	pCi	g	ARS1-B10-02002	0.88495	1						
ARS1-B10-02002-08	TLS-SB-IA3FL-1 (3.4-4.4)03051C	ARS1-10-00493-017	ASP-A-009	TH-230	1.034478	0.229824	0.261631	0.084828	0.0247	pCi	g	ARS1-B10-02002	0.28137	1						
ARS1-B10-02002-06	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	ASP-A-009	TH-230	0.680321	0.140856	0.163099	0.059457	0.019728	pCi	g	ARS1-B10-02002	0.53598	1						
ARS1-B10-02002-04	TLS-SB-IA3FL-3 (10.8-11.8)03041C	ARS1-10-00492-020	ASP-A-009	TH-230	0.620243	0.108915	0.132219	0.035981	0.011348	pCi	g	ARS1-B10-02002	0.76526	1						
ARS1-B10-02002-05	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	ASP-A-009	TH-230	0.799063	0.127587	0.160016	0.038426	0.01212	pCi	g	ARS1-B10-02002	0.71244	1						
ARS1-B10-02002-09	TLS-SB-IA3FL-10 (2.0-3.0)03051C	ARS1-10-00493-023	ASP-A-009	TH-230	0.927112	0.141926	0.180827	0.044838	0.014875	pCi	g	ARS1-B10-02002	0.68179	1						
ARS1-B10-02002-10	TLS-SB-IA3FL-8 (3.0-4.0)03051C	ARS1-10-00493-029	ASP-A-009	TH-230	0.901048	0.155983	0.190237	0.048375	0.014785	pCi	g	ARS1-B10-02002	0.57538	1						
ARS1-B10-02002-14	TLS-SB-IA1-15 (19.0-20.0)031110	ARS1-10-00576-030	ASP-A-009	TH-230	705.4809	3.802962	85.34954	0.028741	0.00714	pCi	g	ARS1-B10-02002	0.71472	1						
ARS1-B10-02002-22	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	ASP-A-009	TH-230	0.986352	0.179807	0.215736	0.067238	0.02231	pCi	g	ARS1-B10-02002	0.47542	1						
ARS1-B10-02002-23	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	ASP-A-009	TH-230	0.769853	0.12045	0.152202	0.031402	0.009108	pCi	g	ARS1-B10-02002	0.77609	1						
ARS1-B10-02002-19	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	ASP-A-009	TH-230	0.566909	0.12083	0.138905	0.044757	0.013455	pCi	g	ARS1-B10-02002	0.546	1						
ARS1-B10-02002-16	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	ASP-A-009	TH-230	0.706581	0.114719	0.143015	0.04123	0.014188	pCi	g	ARS1-B10-02002	0.78353	1						
ARS1-B10-02002-17	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	ASP-A-009	TH-230	0.887559	0.141832	0.17783	0.024101	0.004066	pCi	g	ARS1-B10-02002	0.63875	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02002-18	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	ASP-A-009	TH-230	0.770071	0.121557	0.153096	0.039586	0.013137	pCi	g	ARS1-B10-02002	0.76213	1						
ARS1-B10-02002-20	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	ASP-A-009	TH-230	0.917951	0.148295	0.185202	0.045176	0.014249	pCi	g	ARS1-B10-02002	0.59855	1						
ARS1-B10-02002-15	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	ASP-A-009	TH-230	0.943164	0.120347	0.165763	0.030017	0.009641	pCi	g	ARS1-B10-02002	0.88495	1						
ARS1-B10-02002-08	TLS-SB-IA3FL-1 (3.4-4.4)03051C	ARS1-10-00493-017	ASP-A-009	TH-232	0.6192	0.182185	0.196957	0.113309	0.038976	pCi	g	ARS1-B10-02002	0.28137	1						
ARS1-B10-02002-06	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	ASP-A-009	TH-232	0.746559	0.146752	0.172272	0.054062	0.017051	pCi	g	ARS1-B10-02002	0.53598	1						
ARS1-B10-02002-04	TLS-SB-IA3FL-3 (10.8-11.8)03041C	ARS1-10-00492-020	ASP-A-009	TH-232	0.494639	0.097042	0.113978	0.031752	0.009247	pCi	g	ARS1-B10-02002	0.76526	1						
ARS1-B10-02002-05	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	ASP-A-009	TH-232	0.645898	0.114161	0.138299	0.028125	0.006983	pCi	g	ARS1-B10-02002	0.71244	1						
ARS1-B10-02002-09	TLS-SB-IA3FL-10 (2.0-3.0)03051C	ARS1-10-00493-023	ASP-A-009	TH-232	0.736312	0.126607	0.154754	0.044748	0.014845	pCi	g	ARS1-B10-02002	0.68179	1						
ARS1-B10-02002-10	TLS-SB-IA3FL-8 (3.0-4.0)03051C	ARS1-10-00493-029	ASP-A-009	TH-232	1.019903	0.165496	0.206357	0.045543	0.013388	pCi	g	ARS1-B10-02002	0.57538	1						
ARS1-B10-02002-14	TLS-SB-IA1-15 (19.0-20.0)03111C	ARS1-10-00576-030	ASP-A-009	TH-232	1.244863	0.159589	0.219329	0.014433	0	pCi	g	ARS1-B10-02002	0.71472	1						
ARS1-B10-02002-22	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	ASP-A-009	TH-232	1.080775	0.187376	0.228413	0.061137	0.019283	pCi	g	ARS1-B10-02002	0.47542	1						
ARS1-B10-02002-23	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	ASP-A-009	TH-232	0.59319	0.105479	0.127537	0.026139	0.006489	pCi	g	ARS1-B10-02002	0.77609	1						
ARS1-B10-02002-19	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	ASP-A-009	TH-232	0.420377	0.103556	0.115349	0.035383	0.008786	pCi	g	ARS1-B10-02002	0.546	1						
ARS1-B10-02002-16	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	ASP-A-009	TH-232	1.491711	0.165515	0.244744	0.040367	0.01377	pCi	g	ARS1-B10-02002	0.78353	1						
ARS1-B10-02002-17	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	ASP-A-009	TH-232	0.619408	0.118298	0.139995	0.015938	0	pCi	g	ARS1-B10-02002	0.63875	1						
ARS1-B10-02002-18	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	ASP-A-009	TH-232	0.560554	0.103777	0.123934	0.037797	0.012256	pCi	g	ARS1-B10-02002	0.76213	1						
ARS1-B10-02002-20	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	ASP-A-009	TH-232	0.664021	0.125934	0.149332	0.039867	0.011611	pCi	g	ARS1-B10-02002	0.59855	1						
ARS1-B10-02002-15	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	ASP-A-009	TH-232	0.544143	0.091197	0.112437	0.023007	0.006147	pCi	g	ARS1-B10-02002	0.88495	1						
ARS1-B10-02013-09	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	ASP-A-009	TH-228	0.687969	0.148282	0.170004	0.096068	0.037801	pCi	g	ARS1-B10-02013	0.49818	1						
ARS1-B10-02013-10	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	ASP-A-009	TH-228	0.640474	0.101615	0.12774	0.04332	0.016178	pCi	g	ARS1-B10-02013	0.84731	1						
ARS1-B10-02013-06	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	ASP-A-009	TH-228	1.593044	0.155789	0.24767	0.049351	0.01942	pCi	g	ARS1-B10-02013	0.99812	1						
ARS1-B10-02013-07	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	ASP-A-009	TH-228	2.703312	0.313595	0.452869	0.12358	0.049411	pCi	g	ARS1-B10-02013	0.40905	1						
ARS1-B10-02013-08	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	ASP-A-009	TH-228	2.995249	0.291087	0.464522	0.093581	0.037042	pCi	g	ARS1-B10-02013	0.52963	1						
ARS1-B10-02013-04	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	ASP-A-009	TH-228	0.687713	0.116782	0.143341	0.055594	0.021127	pCi	g	ARS1-B10-02013	0.75144	1						
ARS1-B10-02013-05	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	ASP-A-009	TH-228	0.799947	0.124427	0.157574	0.053665	0.020263	pCi	g	ARS1-B10-02013	0.74733	1						
ARS1-B10-02013-11	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	ASP-A-009	TH-228	0.612716	0.097017	0.12205	0.038797	0.014144	pCi	g	ARS1-B10-02013	0.9911	1						
ARS1-B10-02013-12	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	ASP-A-009	TH-228	0.613403	0.098561	0.123331	0.049634	0.019543	pCi	g	ARS1-B10-02013	0.95729	1						
ARS1-B10-02013-13	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	ASP-A-009	TH-228	0.61775	0.123193	0.144051	0.06244	0.022983	pCi	g	ARS1-B10-02013	0.62166	1						
ARS1-B10-02013-14	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	ASP-A-009	TH-228	0.70083	0.119575	0.146535	0.056689	0.021478	pCi	g	ARS1-B10-02013	0.74532	1						
ARS1-B10-02013-17	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	ASP-A-009	TH-228	0.797859	0.175436	0.200191	0.109467	0.042248	pCi	g	ARS1-B10-02013	0.37798	1						
ARS1-B10-02013-19	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	ASP-A-009	TH-228	0.942514	0.149338	0.187824	0.069747	0.026912	pCi	g	ARS1-B10-02013	0.66362	1						
ARS1-B10-02013-20	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	ASP-A-009	TH-228	0.910455	0.155519	0.190511	0.074432	0.028286	pCi	g	ARS1-B10-02013	0.56936	1						
ARS1-B10-02013-21	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	ASP-A-009	TH-228	0.813625	0.125091	0.159115	0.053372	0.020153	pCi	g	ARS1-B10-02013	0.67917	1						
ARS1-B10-02013-23	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	ASP-A-009	TH-228	0.637758	0.106928	0.131814	0.058796	0.023508	pCi	g	ARS1-B10-02013	0.83392	1						
ARS1-B10-02013-09	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	ASP-A-009	TH-230	0.858967	0.156794	0.188048	0.063005	0.021681	pCi	g	ARS1-B10-02013	0.49818	1						
ARS1-B10-02013-10	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	ASP-A-009	TH-230	0.567455	0.092057	0.114796	0.01588	0.002679	pCi	g	ARS1-B10-02013	0.84731	1						
ARS1-B10-02013-06	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	ASP-A-009	TH-230	5.217877	0.273217	0.687276	0.02005	0.004981	pCi	g	ARS1-B10-02013	0.99812	1						
ARS1-B10-02013-07	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	ASP-A-009	TH-230	3.511346	0.344196	0.546417	0.047224	0.011731	pCi	g	ARS1-B10-02013	0.40905	1						
ARS1-B10-02013-08	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	ASP-A-009	TH-230	3.060473	0.285628	0.467335	0.052327	0.016807	pCi	g	ARS1-B10-02013	0.52963	1						
ARS1-B10-02013-04	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	ASP-A-009	TH-230	0.598311	0.105301	0.127739	0.03805	0.012621	pCi	g	ARS1-B10-02013	0.75144	1						
ARS1-B10-02013-05	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	ASP-A-009	TH-230	0.96396	0.131707	0.175841	0.030193	0.00879	pCi	g	ARS1-B10-02013	0.74733	1						
ARS1-B10-02013-11	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	ASP-A-009	TH-230	1.252201	0.134383	0.202393	0.030018	0.009962	pCi	g	ARS1-B10-02013	0.9911	1						
ARS1-B10-02013-12	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	ASP-A-009	TH-230	0.648117	0.096906	0.124606	0.025406	0.007637	pCi	g	ARS1-B10-02013	0.95729	1						
ARS1-B10-02013-13	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	ASP-A-009	TH-230	0.803622	0.13522	0.166487	0.042858	0.013518	pCi	g	ARS1-B10-02013	0.62166	1						
ARS1-B10-02013-14	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	ASP-A-009	TH-230	0.652413	0.111259	0.136368	0.035725	0.011268	pCi	g	ARS1-B10-02013	0.74532	1						
ARS1-B10-02013-17	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	ASP-A-009	TH-230	1.001944	0.185648	0.221652	0.057432	0.016723	pCi	g	ARS1-B10-02013	0.37798	1						
ARS1-B10-02013-19	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	ASP-A-009	TH-230	0.90773	0.141013	0.178664	0.039342	0.012024	pCi	g	ARS1-B10-02013	0.66362	1						
ARS1-B10-02013-20	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	ASP-A-009	TH-230	0.744444	0.136048	0.163108	0.050967	0.016906	pCi	g	ARS1-B10-02013	0.56936	1						
ARS1-B10-02013-21	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	ASP-A-009	TH-230	0.640891	0.107292	0.13233	0.030043	0.008746	pCi	g	ARS1-B10-02013	0.67917	1						
ARS1-B10-02013-23	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	ASP-A-009	TH-230	58.41679	0.96768	7.126288	0.022472	0.005582	pCi	g	ARS1-B10-02013	0.83392	1						
ARS1-B10-02013-09	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	ASP-A-009	TH-232	0.439533	0.113324	0.125157	0.061686	0.021042	pCi	g	ARS1-B10-02013	0.49818	1						
ARS1-B10-02013-10	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	ASP-A-009	TH-232	0.505824	0.086775	0.106147	0.010501	0	pCi	g	ARS1-B10-02013	0.84731	1						
ARS1-B10-02013-06	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	ASP-A-009	TH-232	2.102146	0.173359	0.307576	0.022419	0.006176	pCi	g	ARS1-B10-02013	0.99812	1						
ARS1-B10-02013-07	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	ASP-A-009	TH-232	3.029637	0.319132	0.485717	0.023714	0	pCi	g	ARS1-B10-02013	0.40905	1						
ARS1-B10-02013-08	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	ASP-A-009	TH-232	2.188347	0.241029	0.357837	0.040107	0.010716	pCi	g	ARS1-B10-02013	0.52963	1						
ARS1-B10-02013-04	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	ASP-A-009	TH-232	0.727321	0.11504	0.14478	0.025377	0.006298	pCi	g	ARS1-B10-02013	0.75144	1						
ARS1-B10-02013-05	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	ASP-A-009	TH-232	0.567783	0.101471	0.122497	0.034076	0.010743	pCi	g	ARS1-B10-02013	0.74733	1						
ARS1-B10-02013-11	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	ASP-A-009	TH-232	0.633709	0.095772	0.122631	0.028662	0.009294	pCi	g	ARS1-B10-02013	0.9911	1						
ARS1-B10-02013-12	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	ASP-A-009	TH-232	0.50836	0.085566	0.10534	0.020085	0.004987	pCi	g	ARS1-B10-02013	0.95729	1						
ARS1-B10-02013-13	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	ASP-A-009	TH-232	0.667958	0.122982	0.147111	0.037821	0.011015	pCi	g	ARS1-B10-02013	0.62166	1						
ARS1-B10-02013-14	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	ASP-A-009	TH-232	0.74749	0.118355	0.148895	0.026148	0.006492	pCi	g	ARS1-B10-02013	0.74532	1						
ARS1-B10-02013-17	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	ASP-A-009	TH-232	0.589364	0.144873	0.161437	0.076716	0.026389	pCi	g	ARS1-B10-02013	0.37798	1						
ARS1-B10-02013-19	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	ASP-A-009	TH-232	0.938911	0.143119	0.182648	0.037038	0.010888	pCi	g	ARS1-B10-02013	0.66362	1						
ARS1-B10-02013-20	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	ASP-A-009	TH-232	0.857359	0.144597	0.177892	0.033993	0.008436	pCi	g	ARS1-B10-02013	0.56936	1						
ARS1-B10-02013-21	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	ASP-A-009	TH-232	0.588875	0.103047	0.125236	0.033906	0.01069	pCi	g	ARS1-B10-02013	0.67917	1						
ARS1-B10-02013-23	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	ASP-A-009	TH-232	0.725176	0.107706	0.13886	0.011285	0	pCi	g	ARS1-B10-02013	0.83392	1						
ARS1-B10-02051-18	TLS-SB-IA2-1 (10.0-11.0)03191C	ARS1-10-00610-016	ASP-A-009	TH-228	0.566711	0.116753	0.13536	0.076453	0.030568	pCi	g	ARS1-B10-02051	0.68579	1						
ARS1-B10-02051-16	TLS-SB-IA2-1 (9.0-10.0)03191C	ARS1-10-00610-014	ASP-A-009	TH-228	0.689349	0.125117	0.150318	0.062162	0.023471	pCi	g	ARS1-B10-02051	0.70044	1						
ARS1-B10-02051-17	TLS-SB-IA2-1 (9.0-10.0)03191CD	ARS1-10-00610-015	ASP-A-009	TH-228	0.757177	0.168112	0.191406	0.111646	0.043934	pCi	g	ARS1-B10-02051	0.43936	1						
ARS1-B10-02051-22	TLS-SB-IA2-12 (10.3-11.3)03191C	ARS1-10-00610-020	ASP-A-009	TH-228	1.485147	0.205215	0.272639	0.072123	0.026293	pCi	g	ARS1-B10-02051	0.55261	1						
ARS1-B10-02051-23	TLS-SB-IA2-12 (24.0-25.0)03191C	ARS1-10-00610-021	ASP-A-009	TH-228	0.736899	0.127683	0.155676	0.068751	0.02707	pCi	g	ARS1-B10-02051	0.6681	1						
ARS1-B10-02051-21	TLS-SB-IA2-12 (8.3-9.3)03191C	ARS1-10-00610-019	ASP-A-009	TH-228	2.345507	0.314349	0.423291	0.114354	0.042707	pCi	g	ARS1-B10-02051	0.35732	1						
ARS1-B10-02051-10	TLS-SB-IA6-1 (4.0-5.0)03191C	ARS1-10-00610-008	ASP-A-009	TH-228	0.638145	0.134295	0.154867	0.093226	0.037763	pCi	g	ARS1-B10-02051	0.62177	1						
ARS1-B10-02051-11	TLS-SB-IA6-1 (6.0-7.0)03191C	ARS1-10-00610-009	ASP-A-009	TH-228	0.749039	0.134767	0.16235	0.077286	0.030722	pCi	g	ARS1-B10-02051	0.64634	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02051-14	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	ASP-A-009	TH-228	0.697591	0.124253	0.150157	0.064495	0.024886	pCi	g	ARS1-B10-02051	0.74132	1						
ARS1-B10-02051-13	TLS-SB-IA6-2 (9.2-10.0)031910	ARS1-10-00610-011	ASP-A-009	TH-228	0.605845	0.112461	0.134198	0.051105	0.018471	pCi	g	ARS1-B10-02051	0.75195	1						
ARS1-B10-02051-04	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	ASP-A-009	TH-228	0.469323	0.083679	0.101092	0.046108	0.018143	pCi	g	ARS1-B10-02051	1.05031	1						
ARS1-B10-02051-05	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	ASP-A-009	TH-228	0.355582	0.077905	0.088972	0.044502	0.01662	pCi	g	ARS1-B10-02051	0.93388	1						
ARS1-B10-02051-06	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	ASP-A-009	TH-228	0.833518	0.124512	0.160161	0.047127	0.017181	pCi	g	ARS1-B10-02051	0.84586	1						
ARS1-B10-02051-08	TLS-SB-IA6-4 (4.0-5.0)031910	ARS1-10-00610-006	ASP-A-009	TH-228	0.8973	0.138285	0.175738	0.055233	0.02033	pCi	g	ARS1-B10-02051	0.71459	1						
ARS1-B10-02051-15	TLS-SS-IA2-1 (0.8-1.3)03191C	ARS1-10-00610-013	ASP-A-009	TH-228	0.699361	0.116767	0.14415	0.054735	0.020801	pCi	g	ARS1-B10-02051	0.77246	1						
ARS1-B10-02051-19	TLS-SS-IA2-12 (0.5-1.0)03191C	ARS1-10-00610-017	ASP-A-009	TH-228	0.615117	0.101757	0.126022	0.053493	0.021174	pCi	g	ARS1-B10-02051	0.93364	1						
ARS1-B10-02051-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	ASP-A-009	TH-228	0.925221	0.160456	0.195578	0.07721	0.029253	pCi	g	ARS1-B10-02051	0.54762	1						
ARS1-B10-02051-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	ASP-A-009	TH-228	0.491523	0.101334	0.117463	0.059839	0.023094	pCi	g	ARS1-B10-02051	0.71102	1						
ARS1-B10-02051-07	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	ASP-A-009	TH-228	0.748311	0.142545	0.168816	0.083351	0.032819	pCi	g	ARS1-B10-02051	0.55968	1						
ARS1-B10-02051-18	TLS-SB-IA2-1 (10.0-11.0)031910	ARS1-10-00610-016	ASP-A-009	TH-230	1.219603	0.160132	0.217646	0.02939	0.007301	pCi	g	ARS1-B10-02051	0.68579	1			2.96	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-16	TLS-SB-IA2-1 (9.0-10.0)03191C	ARS1-10-00610-014	ASP-A-009	TH-230	0.959734	0.141938	0.183306	0.035183	0.010242	pCi	g	ARS1-B10-02051	0.70044	1			2.16	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-17	TLS-SB-IA2-1 (9.0-10.0)031910D	ARS1-10-00610-015	ASP-A-009	TH-230	0.89974	0.171646	0.203193	0.04563	0.011337	pCi	g	ARS1-B10-02051	0.43936	1		J	1.75	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-22	TLS-SB-IA2-12 (10.3-11.3)031910	ARS1-10-00610-020	ASP-A-009	TH-230	1.665186	0.212198	0.292458	0.056107	0.01862	pCi	g	ARS1-B10-02051	0.55261	1			3.73	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-23	TLS-SB-IA2-12 (24.0-25.0)031910	ARS1-10-00610-021	ASP-A-009	TH-230	0.91578	0.135932	0.175294	0.035383	0.010637	pCi	g	ARS1-B10-02051	0.6681	1			2.02	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-21	TLS-SB-IA2-12 (8.3-9.3)03191C	ARS1-10-00610-019	ASP-A-009	TH-230	12.88825	0.714617	1.713781	0.042177	0.007115	pCi	g	ARS1-B10-02051	0.35732	1			7.22	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-10	TLS-SB-IA6-1 (4.0-5.0)031910	ARS1-10-00610-008	ASP-A-009	TH-230	0.727147	0.134254	0.160461	0.050819	0.016862	pCi	g	ARS1-B10-02051	0.62177	1		J	1.20	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-11	TLS-SB-IA6-1 (6.0-7.0)031910	ARS1-10-00610-009	ASP-A-009	TH-230	0.825213	0.134382	0.167349	0.03644	0.010569	pCi	g	ARS1-B10-02051	0.64634	1		J	1.64	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-14	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	ASP-A-009	TH-230	0.864986	0.132716	0.168946	0.036579	0.01118	pCi	g	ARS1-B10-02051	0.74132	1		J	1.83	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-13	TLS-SB-IA6-2 (9.2-10.0)031910	ARS1-10-00610-011	ASP-A-009	TH-230	0.645282	0.113005	0.137304	0.04065	0.013486	pCi	g	ARS1-B10-02051	0.75195	1		J	0.86	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-04	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	ASP-A-009	TH-230	0.496095	0.082626	0.102089	0.03043	0.010472	pCi	g	ARS1-B10-02051	1.05031	1		J	0.04	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-05	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	ASP-A-009	TH-230	0.544147	0.091659	0.112812	0.016416	0.002769	pCi	g	ARS1-B10-02051	0.93388	1		J	0.33	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-06	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	ASP-A-009	TH-230	0.928976	0.128246	0.17045	0.036666	0.012168	pCi	g	ARS1-B10-02051	0.84586	1			2.13	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-08	TLS-SB-IA6-4 (4.0-5.0)031910	ARS1-10-00610-006	ASP-A-009	TH-230	1.140648	0.151532	0.204859	0.038121	0.012023	pCi	g	ARS1-B10-02051	0.71459	1			2.76	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-15	TLS-SS-IA2-1 (0.8-1.3)03191C	ARS1-10-00610-013	ASP-A-009	TH-230	0.665546	0.110404	0.136599	0.037686	0.012501	pCi	g	ARS1-B10-02051	0.77246	1		J	0.98	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-19	TLS-SS-IA2-12 (0.5-1.0)03191C	ARS1-10-00610-017	ASP-A-009	TH-230	0.839046	0.113726	0.152371	0.030096	0.009667	pCi	g	ARS1-B10-02051	0.93364	1		J	1.82	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	ASP-A-009	TH-230	1.004375	0.161427	0.201975	0.04893	0.015433	pCi	g	ARS1-B10-02051	0.54762	1			2.21	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	ASP-A-009	TH-230	0.657219	0.111368	0.136793	0.031568	0.009192	pCi	g	ARS1-B10-02051	0.71102	1		J	0.93	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02051-07	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	ASP-A-009	TH-230	0.954663	0.152929	0.191573	0.0429	0.012896	pCi	g	ARS1-B10-02051	0.55968	1			2.07	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02051-18	TLS-SB-IA2-1 (10.0-11.0)031910	ARS1-10-00610-016	ASP-A-009	TH-232	0.464435	0.098572	0.113434	0.014759	0	pCi	g	ARS1-B10-02051	0.68579	1						
ARS1-B10-02051-16	TLS-SB-IA2-1 (9.0-10.0)03191C	ARS1-10-00610-014	ASP-A-009	TH-232	0.651239	0.117324	0.14128	0.039707	0.012519	pCi	g	ARS1-B10-02051	0.70044	1						
ARS1-B10-02051-17	TLS-SB-IA2-1 (9.0-10.0)031910D	ARS1-10-00610-015	ASP-A-009	TH-232	0.579276	0.138181	0.154905	0.051021	0.014055	pCi	g	ARS1-B10-02051	0.43936	1						
ARS1-B10-02051-22	TLS-SB-IA2-12 (10.3-11.3)031910	ARS1-10-00610-020	ASP-A-009	TH-232	1.476728	0.199611	0.267767	0.053572	0.017371	pCi	g	ARS1-B10-02051	0.55261	1						
ARS1-B10-02051-23	TLS-SB-IA2-12 (24.0-25.0)031910	ARS1-10-00610-021	ASP-A-009	TH-232	0.702736	0.118727	0.145978	0.027973	0.006946	pCi	g	ARS1-B10-02051	0.6681	1						
ARS1-B10-02051-21	TLS-SB-IA2-12 (8.3-9.3)03191C	ARS1-10-00610-019	ASP-A-009	TH-232	2.839573	0.335071	0.479639	0.027892	0	pCi	g	ARS1-B10-02051	0.35732	1						
ARS1-B10-02051-10	TLS-SB-IA6-1 (4.0-5.0)031910	ARS1-10-00610-008	ASP-A-009	TH-232	0.694194	0.130728	0.155336	0.046208	0.014574	pCi	g	ARS1-B10-02051	0.62177	1						
ARS1-B10-02051-11	TLS-SB-IA6-1 (6.0-7.0)031910	ARS1-10-00610-009	ASP-A-009	TH-232	0.674515	0.121171	0.146042	0.030332	0.007531	pCi	g	ARS1-B10-02051	0.64634	1						
ARS1-B10-02051-14	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	ASP-A-009	TH-232	0.843615	0.130832	0.165869	0.034438	0.010123	pCi	g	ARS1-B10-02051	0.74132	1						
ARS1-B10-02051-13	TLS-SB-IA6-2 (9.2-10.0)031910	ARS1-10-00610-011	ASP-A-009	TH-232	0.457324	0.09543	0.110281	0.040569	0.013459	pCi	g	ARS1-B10-02051	0.75195	1						
ARS1-B10-02051-04	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	ASP-A-009	TH-232	0.241827	0.058242	0.065165	0.029793	0.010163	pCi	g	ARS1-B10-02051	1.05031	1						
ARS1-B10-02051-05	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	ASP-A-009	TH-232	0.334618	0.071759	0.08237	0.010856	0	pCi	g	ARS1-B10-02051	0.93388	1						
ARS1-B10-02051-06	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	ASP-A-009	TH-232	1.016394	0.133836	0.181665	0.03501	0.011352	pCi	g	ARS1-B10-02051	0.84586	1						
ARS1-B10-02051-08	TLS-SB-IA6-4 (4.0-5.0)031910	ARS1-10-00610-006	ASP-A-009	TH-232	0.695176	0.118227	0.145041	0.033641	0.009797	pCi	g	ARS1-B10-02051	0.71459	1						
ARS1-B10-02051-15	TLS-SS-IA2-1 (0.8-1.3)03191C	ARS1-10-00610-013	ASP-A-009	TH-232	0.766114	0.117487	0.149588	0.025135	0.006238	pCi	g	ARS1-B10-02051	0.77246	1						
ARS1-B10-02051-19	TLS-SS-IA2-12 (0.5-1.0)03191C	ARS1-10-00610-017	ASP-A-009	TH-232	0.481997	0.085981	0.103857	0.023067	0.006163	pCi	g	ARS1-B10-02051	0.93364	1						
ARS1-B10-02051-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	ASP-A-009	TH-232	0.760792	0.139843	0.167364	0.035813	0.008892	pCi	g	ARS1-B10-02051	0.54762	1						
ARS1-B10-02051-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	ASP-A-009	TH-232	0.272383	0.073342	0.080392	0.042166	0.014504	pCi	g	ARS1-B10-02051	0.71102	1						
ARS1-B10-02051-07	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	ASP-A-009	TH-232	0.705147	0.131022	0.156301	0.033915	0.008421	pCi	g	ARS1-B10-02051	0.55968	1						
ARS1-B10-02072-05	TLS-SB-IA1-2 (22.7-23.7) 03081C	ARS1-10-00511-022	ASP-A-009	TH-228	3.103617	0.314154	0.489282	0.087282	0.032596	pCi	g	ARS1-B10-02072	0.4828	1						
ARS1-B10-02072-04	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	ASP-A-009	TH-228	0.404196	0.086179	0.099062	0.055331	0.021772	pCi	g	ARS1-B10-02072	0.89019	1						
ARS1-B10-02072-07	TLS-SB-IA2-6 (2.0-3.0)031910	ARS1-10-00610-023	ASP-A-009	TH-228	0.930169	0.13968	0.179301	0.066185	0.02606	pCi	g	ARS1-B10-02072	0.71509	1						
ARS1-B10-02072-09	TLS-SB-IA2-6 (22.9-23.9)031910	ARS1-10-00610-025	ASP-A-009	TH-228	2.087531	0.21301	0.330195	0.074414	0.029753	pCi	g	ARS1-B10-02072	0.71834	1						
ARS1-B10-02072-10	TLS-SB-IA2-6 (29.0-30.0)031910	ARS1-10-00610-026	ASP-A-009	TH-228	0.741914	0.132728	0.160178	0.074729	0.02958	pCi	g	ARS1-B10-02072	0.66247	1						
ARS1-B10-02072-06	TLS-SS-IA2-6 (0.6-1.1)03191C	ARS1-10-00610-022	ASP-A-009	TH-228	0.841251	0.129982	0.165024	0.050794	0.018517	pCi	g	ARS1-B10-02072	0.7751	1						
ARS1-B10-02072-11	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	ASP-A-009	TH-228	0.647796	0.093308	0.121804	0.042477	0.016714	pCi	g	ARS1-B10-02072	1.12456	1						
ARS1-B10-02072-13	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	ASP-A-009	TH-228	0.517983	0.113702	0.129797	0.061418	0.02239	pCi	g	ARS1-B10-02072	0.63505	1						
ARS1-B10-02072-15	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	ASP-A-009	TH-228	0.810855	0.120316	0.155177	0.046369	0.017067	pCi	g	ARS1-B10-02072	0.84414	1						
ARS1-B10-02072-16	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	ASP-A-009	TH-228	1.024741	0.14535	0.19096	0.058082	0.022006	pCi	g	ARS1-B10-02072	0.73363	1						
ARS1-B10-02072-17	TLS-SB-IA2-9 (6.0-7.0)032210D	ARS1-10-00629-027	ASP-A-009	TH-228	0.93057	0.162496	0.197622	0.096732	0.039184	pCi	g	ARS1-B10-02072	0.58887	1						
ARS1-B10-02072-21	TLS-SB-IA2-DOE-B3 (12.0-13.0)03221C	ARS1-10-00629-031	ASP-A-009	TH-228	0.888333	0.138838	0.175508	0.064037	0.024709	pCi	g	ARS1-B10-02072	0.76213	1						
ARS1-B10-02072-22	TLS-SB-IA2-DOE-B3 (14.0-15.0)03221C	ARS1-10-00629-032	ASP-A-009	TH-228	0.694602	0.131174	0.155738	0.068729	0.026119	pCi	g	ARS1-B10-02072	0.60972	1						
ARS1-B10-02072-19	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221C	ARS1-10-00629-029	ASP-A-009	TH-228	2.370572	0.271503	0.394716	0.093733	0.036175	pCi	g	ARS1-B10-02072	0.46397	1						
ARS1-B10-02072-20	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221C	ARS1-10-00629-030	ASP-A-009	TH-228	2.840554	0.269828	0.436657	0.064553	0.023332	pCi	g	ARS1-B10-02072	0.59686	1						
ARS1-B10-02072-12	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	ASP-A-009	TH-228	0.606231	0.1011	0.124858	0.045141	0.016858	pCi	g	ARS1-B10-02072	0.83304	1						
ARS1-B10-02072-18	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221C	ARS1-10-00629-028	ASP-A-009	TH-228	0.880887	0.148817	0.182978	0.080798	0.032117	pCi	g	ARS1-B10-02072	0.63413	1						
ARS1-B10-02072-23	TLS-SS-IA2-10 (0.4-0.9)03231C	ARS1-10-00630-001	ASP-A-009	TH-228	1.125596	0.167384	0.215695	0.069236	0.026142	pCi	g	ARS1-B10-02072	0.62724	1						
ARS1-B10-02072-05	TLS-SB-IA1-2 (22.7-23.7) 03081C	ARS1-10-00511-022	ASP-A-009	TH-230	4.067346	0.348794	0.602751	0.031832	0.00537	pCi	g	ARS1-B10-02072	0.4828	1			6.19	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-04	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	ASP-A-009	TH-230	0.553194	0.095107	0.116256	0.036103	0.012424	pCi	g	ARS1-B10-02072	0.89019	1		J	1.78	Y	n	Primary Finding > MB, Abs.Norl.Diff.< 2.0 -posssible bias
ARS1-B10-02072-07	TLS-SB-IA2-6 (2.0-3.0)031910	ARS1-10-00610-023	ASP-A-009	TH-230	1.297436	0.158501	0.222961	0.034051	0.010236	pCi	g	ARS1-B10-02072	0.71509	1			4.21	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-09	TLS-SB-IA2-6 (22.9-23.9)031910	ARS1-10-00610-025	ASP-A-009	TH-230	2.301838	0.216823	0.352715	0.02859	0.007102	pCi	g	ARS1-B10-02072	0.71834	1			5.53	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-10	TLS-SB-IA2-6 (29.0-30.0)031910	ARS1-10-00610-026	ASP-A-009	TH-230	0.88569	0.13828	0.174871	0.042012	0.013494	pCi	g	ARS1-B10-02072	0.66247	1			3.04	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-06	TLS-SS-IA2-6 (0.6-1.1)03191C	ARS1-10-00610-022	ASP-A-009	TH-230	1.281845	0.156144	0.21996	0.039502	0.013109	pCi	g	ARS1-B10-02072	0.7751	1			4.19	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-11	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	ASP-A-009	TH-230	0.57788	0.085479	0.110384	0.028091	0.009667	pCi	g	ARS1-B10-02072	1.12456	1			2.03	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02072-13	TLS-SB-IA2-9 (2.0-3.0)032210	ARS1-10-00629-023	ASP-A-009	TH-230	0.896017	0.144257	0.180381	0.047883	0.015891	pCi	g	ARS1-B10-02072	0.63505	1			3.01	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-15	TLS-SB-IA2-9 (4.1-5.1)032210	ARS1-10-00629-025	ASP-A-009	TH-230	0.837282	0.119157	0.156329	0.032071	0.010115	pCi	g	ARS1-B10-02072	0.84414	1			3.06	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-16	TLS-SB-IA2-9 (6.0-7.0)032210	ARS1-10-00629-026	ASP-A-009	TH-230	1.083542	0.145286	0.195596	0.036883	0.011633	pCi	g	ARS1-B10-02072	0.73363	1			3.71	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-17	TLS-SB-IA2-9 (6.0-7.0)032210D	ARS1-10-00629-027	ASP-A-009	TH-230	1.205296	0.175508	0.228087	0.052837	0.017532	pCi	g	ARS1-B10-02072	0.58887	1			3.74	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-21	TLS-SB-IA2-DOE-B3 (12.0-13.0)03221C	ARS1-10-00629-031	ASP-A-009	TH-230	0.865996	0.132455	0.168817	0.036395	0.011123	pCi	g	ARS1-B10-02072	0.76213	1			3.03	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-22	TLS-SB-IA2-DOE-B3 (14.0-15.0)03221C	ARS1-10-00629-032	ASP-A-009	TH-230	0.673983	0.124901	0.149117	0.04742	0.01573	pCi	g	ARS1-B10-02072	0.60972	1			2.20	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-19	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221C	ARS1-10-00629-029	ASP-A-009	TH-230	3.014612	0.297879	0.470618	0.049551	0.014428	pCi	g	ARS1-B10-02072	0.46397	1			5.68	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-20	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221C	ARS1-10-00629-030	ASP-A-009	TH-230	3.28811	0.284805	0.48892	0.051453	0.01707	pCi	g	ARS1-B10-02072	0.59686	1			6.03	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-12	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	ASP-A-009	TH-230	1.07358	0.129759	0.183503	0.016685	0.002815	pCi	g	ARS1-B10-02072	0.83304	1			3.87	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-18	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221C	ARS1-10-00629-028	ASP-A-009	TH-230	1.365139	0.176618	0.241694	0.038173	0.011072	pCi	g	ARS1-B10-02072	0.63413	1			4.18	n	n	Primary Finding > MB, Abs.Norl.Diff > 2.0 -no bias
ARS1-B10-02072-23	TLS-SS-IA2-10 (0.4-0.9)03231C	ARS1-10-00630-001	ASP-A-009	TH-230	1.225118	0.169404	0.224993	0.039297	0.01144	pCi	g	ARS1-B10-02072	0.62724	1		J	2.77	n	n	LCS: Normalized Absolute Difference > 2.0, Recovery > Lab UCL
ARS1-B10-02072-05	TLS-SB-IA1-2 (22.7-23.7) 03081C	ARS1-10-00511-022	ASP-A-009	TH-232	3.126468	0.305444	0.48588	0.021051	0	pCi	g	ARS1-B10-02072	0.4828	1						
ARS1-B10-02072-04	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 03081	ARS1-10-00511-018	ASP-A-009	TH-232	0.324934	0.073351	0.083202	0.035347	0.012057	pCi	g	ARS1-B10-02072	0.89019	1						
ARS1-B10-02072-07	TLS-SB-IA2-6 (2.0-3.0)031910	ARS1-10-00610-023	ASP-A-009	TH-232	0.785666	0.12311	0.155476	0.02692	0.006684	pCi	g	ARS1-B10-02072	0.71509	1						
ARS1-B10-02072-09	TLS-SB-IA2-6 (22.9-23.9)031910	ARS1-10-00610-025	ASP-A-009	TH-232	2.648568	0.23217	0.395439	0.014357	0	pCi	g	ARS1-B10-02072	0.71834	1						
ARS1-B10-02072-10	TLS-SB-IA2-6 (29.0-30.0)031910	ARS1-10-00610-026	ASP-A-009	TH-232	0.550172	0.108622	0.127359	0.032201	0.008604	pCi	g	ARS1-B10-02072	0.66247	1						
ARS1-B10-02072-06	TLS-SS-IA2-6 (0.6-1.1)03191C	ARS1-10-00610-022	ASP-A-009	TH-232	1.256814	0.154371	0.216573	0.037717	0.01223	pCi	g	ARS1-B10-02072	0.7751	1						
ARS1-B10-02072-11	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	ASP-A-009	TH-232	0.438796	0.074575	0.091509	0.027503	0.009382	pCi	g	ARS1-B10-02072	1.12456	1						
ARS1-B10-02072-13	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	ASP-A-009	TH-232	0.343209	0.090167	0.099251	0.045719	0.014825	pCi	g	ARS1-B10-02072	0.63505	1						
ARS1-B10-02072-15	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	ASP-A-009	TH-232	0.798466	0.116066	0.150944	0.028301	0.008242	pCi	g	ARS1-B10-02072	0.84414	1						
ARS1-B10-02072-16	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	ASP-A-009	TH-232	0.961374	0.136325	0.179123	0.026996	0.006703	pCi	g	ARS1-B10-02072	0.73363	1						
ARS1-B10-02072-17	TLS-SB-IA2-9 (6.0-7.0)03221OD	ARS1-10-00629-027	ASP-A-009	TH-232	1.02342	0.161428	0.203368	0.048043	0.015153	pCi	g	ARS1-B10-02072	0.58887	1						
ARS1-B10-02072-21	TLS-SB-IA2-DOE-B3 (12.0-13.0)03221C	ARS1-10-00629-031	ASP-A-009	TH-232	0.874945	0.13288	0.169822	0.034265	0.010072	pCi	g	ARS1-B10-02072	0.76213	1						
ARS1-B10-02072-22	TLS-SB-IA2-DOE-B3 (14.0-15.0)03221C	ARS1-10-00629-032	ASP-A-009	TH-232	0.658872	0.122331	0.145966	0.031627	0.007849	pCi	g	ARS1-B10-02072	0.60972	1						
ARS1-B10-02072-19	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221C	ARS1-10-00629-029	ASP-A-009	TH-232	2.080207	0.248271	0.353339	0.066188	0.022767	pCi	g	ARS1-B10-02072	0.46397	1						
ARS1-B10-02072-20	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221C	ARS1-10-00629-030	ASP-A-009	TH-232	2.964968	0.270251	0.44883	0.05135	0.017035	pCi	g	ARS1-B10-02072	0.59686	1						
ARS1-B10-02072-12	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	ASP-A-009	TH-232	1.389607	0.14743	0.223478	0.011034	0	pCi	g	ARS1-B10-02072	0.83304	1						
ARS1-B10-02072-18	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221C	ARS1-10-00629-028	ASP-A-009	TH-232	0.875204	0.141194	0.176422	0.031775	0.007889	pCi	g	ARS1-B10-02072	0.63413	1						
ARS1-B10-02072-23	TLS-SS-IA2-10 (0.4-0.9)03231C	ARS1-10-00630-001	ASP-A-009	TH-232	0.834527	0.140216	0.172724	0.04435	0.013983	pCi	g	ARS1-B10-02072	0.62724	1						
ARS1-B10-02075-04	TLS-SB-IA2-10 (3.0-4.0)03231C	ARS1-10-00630-002	ASP-A-009	TH-228	0.970963	0.183987	0.218226	0.106883	0.042057	pCi	g	ARS1-B10-02075	0.44962	1						
ARS1-B10-02075-05	TLS-SB-IA2-10 (4.7-5.7)03231C	ARS1-10-00630-003	ASP-A-009	TH-228	0.593363	0.115316	0.135797	0.059207	0.022112	pCi	g	ARS1-B10-02075	0.65807	1						
ARS1-B10-02075-06	TLS-SB-IA2-10 (6.0-7.0)03231C	ARS1-10-00630-004	ASP-A-009	TH-228	0.660658	0.109463	0.135491	0.045679	0.016653	pCi	g	ARS1-B10-02075	0.86372	1						
ARS1-B10-02075-07	TLS-SB-IA2-10 (8.0-9.0)03231C	ARS1-10-00630-005	ASP-A-009	TH-228	0.602503	0.112247	0.133798	0.064387	0.025352	pCi	g	ARS1-B10-02075	0.7332	1						
ARS1-B10-02075-14	TLS-SB-IA2-11 (0.6-1.6)03231C	ARS1-10-00630-012	ASP-A-009	TH-228	0.652686	0.117385	0.141428	0.061457	0.023714	pCi	g	ARS1-B10-02075	0.79692	1						
ARS1-B10-02075-15	TLS-SB-IA2-11 (1.6-2.6)03231C	ARS1-10-00630-013	ASP-A-009	TH-228	0.696817	0.122775	0.148883	0.060438	0.022968	pCi	g	ARS1-B10-02075	0.68744	1						
ARS1-B10-02075-16	TLS-SB-IA2-11 (3.8-4.8)03231C	ARS1-10-00630-014	ASP-A-009	TH-228	0.872181	0.138776	0.174272	0.061125	0.02308	pCi	g	ARS1-B10-02075	0.70495	1						
ARS1-B10-02075-17	TLS-SB-IA2-11 (6.0-7.0)03231C	ARS1-10-00630-015	ASP-A-009	TH-228	0.688775	0.125596	0.150679	0.070591	0.027779	pCi	g	ARS1-B10-02075	0.64767	1						
ARS1-B10-02075-20	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	ASP-A-009	TH-228	0.897387	0.126004	0.166254	0.056039	0.02205	pCi	g	ARS1-B10-02075	0.8271	1						
ARS1-B10-02075-21	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	ASP-A-009	TH-228	1.040616	0.15973	0.203302	0.066028	0.024659	pCi	g	ARS1-B10-02075	0.62221	1						
ARS1-B10-02075-22	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	ASP-A-009	TH-228	0.398638	0.083074	0.096034	0.042823	0.015611	pCi	g	ARS1-B10-02075	0.92522	1						
ARS1-B10-02075-23	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	ASP-A-009	TH-228	0.565298	0.098763	0.120092	0.053568	0.021092	pCi	g	ARS1-B10-02075	0.87483	1						
ARS1-B10-02075-19	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	ASP-A-009	TH-228	0.67318	0.109837	0.136688	0.057039	0.022578	pCi	g	ARS1-B10-02075	0.86543	1						
ARS1-B10-02075-09	TLS-SB-IA2-DOE-B1 (2.8-3.8)03231C	ARS1-10-00630-007	ASP-A-009	TH-228	0.784743	0.131219	0.161907	0.061074	0.023139	pCi	g	ARS1-B10-02075	0.69765	1						
ARS1-B10-02075-10	TLS-SB-IA2-DOE-B1 (3.8-4.8)03231C	ARS1-10-00630-008	ASP-A-009	TH-228	0.783752	0.136171	0.165877	0.080715	0.032696	pCi	g	ARS1-B10-02075	0.72689	1						
ARS1-B10-02075-11	TLS-SB-IA2-DOE-B1 (4.8-5.8)03231C	ARS1-10-00630-009	ASP-A-009	TH-228	0.859424	0.137392	0.172238	0.071052	0.028243	pCi	g	ARS1-B10-02075	0.71482	1						
ARS1-B10-02075-12	TLS-SB-IA2-DOE-B1 (5.8-6.8)03231C	ARS1-10-00630-010	ASP-A-009	TH-228	0.770661	0.15961	0.1848	0.094625	0.036519	pCi	g	ARS1-B10-02075	0.4462	1						
ARS1-B10-02075-13	TLS-SS-IA2-11 (0.0-0.6)03231C	ARS1-10-00630-011	ASP-A-009	TH-228	0.68333	0.119144	0.144969	0.051078	0.018462	pCi	g	ARS1-B10-02075	0.73626	1						
ARS1-B10-02075-18	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	ASP-A-009	TH-228	0.484678	0.084236	0.102602	0.047785	0.019106	pCi	g	ARS1-B10-02075	1.10999	1						
ARS1-B10-02075-08	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231C	ARS1-10-00630-006	ASP-A-009	TH-228	0.656334	0.109137	0.13492	0.046805	0.017228	pCi	g	ARS1-B10-02075	0.835	1						
ARS1-B10-02075-04	TLS-SB-IA2-10 (3.0-4.0)03231C	ARS1-10-00630-002	ASP-A-009	TH-230	0.873704	0.167763	0.19823	0.070714	0.024334	pCi	g	ARS1-B10-02075	0.44962	1		J	1.53	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02075-05	TLS-SB-IA2-10 (4.7-5.7)03231C	ARS1-10-00630-003	ASP-A-009	TH-230	0.741577	0.123573	0.152655	0.021894	0.003693	pCi	g	ARS1-B10-02075	0.65807	1		J	1.15	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02075-06	TLS-SB-IA2-10 (6.0-7.0)03231C	ARS1-10-00630-004	ASP-A-009	TH-230	0.801317	0.117505	0.152272	0.035628	0.011824	pCi	g	ARS1-B10-02075	0.86372	1		J	1.46	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02075-07	TLS-SB-IA2-10 (8.0-9.0)03231C	ARS1-10-00630-005	ASP-A-009	TH-230	0.817528	0.12448	0.158928	0.033223	0.009987	pCi	g	ARS1-B10-02075	0.7332	1		J	1.50	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02075-14	TLS-SB-IA2-11 (0.6-1.6)03231C	ARS1-10-00630-012	ASP-A-009	TH-230	1.041752	0.142208	0.189936	0.034945	0.01068	pCi	g	ARS1-B10-02075	0.79692	1			2.33	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02075-15	TLS-SB-IA2-11 (1.6-2.6)03231C	ARS1-10-00630-013	ASP-A-009	TH-230	1.127395	0.150707	0.203172	0.041718	0.013838	pCi	g	ARS1-B10-02075	0.68744	1			2.58	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02075-16	TLS-SB-IA2-11 (3.8-4.8)03231C	ARS1-10-00630-014	ASP-A-009	TH-230	1.542674	0.178418	0.258062	0.034684	0.010097	pCi	g	ARS1-B10-02075	0.70495	1			3.60	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02075-17	TLS-SB-IA2-11 (6.0-7.0)03231C	ARS1-10-00630-015	ASP-A-009	TH-230	0.705674	0.120944	0.147992	0.028919	0.007185	pCi	g	ARS1-B10-02075	0.64767	1		J	0.99	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02075-20	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	ASP-A-009	TH-230	1.24639	0.143679	0.208172	0.037059	0.012753	pCi	g	ARS1-B10-02075	0.8271	1			3.03	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02075-21	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	ASP-A-009	TH-230	1.379596	0.177905	0.243828	0.024405	0.004117	pCi	g	ARS1-B10-02075	0.62221	1			3.17	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02075-22	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	ASP-A-009	TH-230	0.481735	0.088547	0.105974	0.033385	0.011079	pCi	g	ARS1-B10-02075	0.92522	1		R	0.22	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 2.0, Recov
ARS1-B10-02075-23	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	ASP-A-009	TH-230	15.63441	0.494232	1.953147	0.027627	0.008305	pCi	g	ARS1-B10-02075	0.87483	1			7.73	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02075-19	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	ASP-A-009	TH-230	0.927784	0.1236	0.166885	0.03216	0.01033	pCi	g	ARS1-B10-02075	0.86543	1		J	1.99	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02075-09	TLS-SB-IA2-DOE-B1 (2.8-3.8)03231C	ARS1-10-00630-007	ASP-A-009	TH-230	2.095308	0.20679	0.326944	0.038801	0.012238	pCi	g	ARS1-B10-02075	0.69765	1			4.52	n	n	LCS: Normalized Absolute Difference > 2.0, Recovery > Lab UCL
ARS1-B10-02075-10	TLS-SB-IA2-DOE-B1 (3.8-4.8)03231C	ARS1-10-00630-008	ASP-A-009	TH-230	1.804078	0.195572	0.292901	0.044109	0.014636	pCi	g	ARS1-B10-02075	0.72689	1			4.06	n	n	LCS: Normalized Absolute Difference > 2.0, Recovery > Lab UCL
ARS1-B10-02075-11	TLS-SB-IA2-DOE-B1 (4.8-5.8)03231C	ARS1-10-00630-009	ASP-A-009	TH-230	1.038898	0.14458	0.191492	0.033584	0.009741	pCi	g	ARS1-B10-02075	0.71482	1			2.30	n	n	LCS: Normalized Absolute Difference > 2.0, Recovery > Lab UCL
ARS1-B10-02075-12	TLS-SB-IA2-DOE-B1 (5.8-6.8)03231C	ARS1-10-00630-010	ASP-A-009	TH-230	1.017939	0.174532	0.213536	0.050045	0.014572	pCi	g	ARS1-B10-02075	0.4462	1			2.04	n	n	LCS: Normalized Absolute Difference > 2.0, Recovery > Lab UCL
ARS1-B10-02075-13	TLS-SS-IA2-11 (0.0-0.6)03231C	ARS1-10-00630-011	ASP-A-009	TH-230	1.439831	0.168028	0.241901	0.040731	0.013513	pCi	g	ARS1-B10-02075	0.73626	1			3.41	n	n	LCS: Normalized Absolute Difference > 2.0, Recovery > Lab UCL
ARS1-B10-02075-18	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	ASP-A-009	TH-230	0.583033	0.087674	0.112482	0.018412	0.004574	pCi	g	ARS1-B10-02075	1.10999	1		J	0.40	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02075-08	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231C	ARS1-10-00630-006	ASP-A-009	TH-230	0.997942	0.130625	0.177792	0.032387	0.010215	pCi	g	ARS1-B10-02075	0.835	1			2.23	n	n	LCS: Normalized Absolute Difference > 2.0, Recovery > Lab UCL
ARS1-B10-02075-04	TLS-SB-IA2-10 (3.0-4.0)03231C	ARS1-10-00630-002	ASP-A-009	TH-232	0.612974	0.141101	0.159367	0.069234	0.023616	pCi	g	ARS1-B10-02075	0.44962	1						
ARS1-B10-02075-05	TLS-SB-IA2-10 (4.7-5.7)03231C	ARS1-10-00630-003	ASP-A-009	TH-232	0.614759	0.112328	0.134678	0.014479	0	pCi	g	ARS1-B10-02075	0.65807	1						
ARS1-B10-02075-06	TLS-SB-IA2-10 (6.0-7.0)03231C	ARS1-10-00630-004	ASP-A-009	TH-232	0.673516	0.107649	0.134961	0.034018	0.011031	pCi	g	ARS1-B10-02075	0.86372	1						
ARS1-B10-02075-07	TLS-SB-IA2-10 (8.0-9.0)03231C	ARS1-10-00630-005	ASP-A-009	TH-232	0.57797	0.104371	0.12559	0.026265	0.006522	pCi	g	ARS1-B10-02075	0.7332	1						
ARS1-B10-02075-14	TLS-SB-IA2-11 (0.6-1.6)03231C	ARS1-10-00630-012	ASP-A-009	TH-232	0.68915	0.11566	0.142529	0.032899	0.009671	pCi	g	ARS1-B10-02075	0.79692	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02075-15	TLS-SB-IA2-11 (1.6-2.6)032310	ARS1-10-00630-013	ASP-A-009	TH-232	0.526041	0.102555	0.120664	0.027824	0.006905	pCi	g	ARS1-B10-02075	0.68744	1						
ARS1-B10-02075-16	TLS-SB-IA2-11 (3.8-4.8)032310	ARS1-10-00630-014	ASP-A-009	TH-232	0.894637	0.136222	0.173919	0.039144	0.012341	pCi	g	ARS1-B10-02075	0.70495	1						
ARS1-B10-02075-17	TLS-SB-IA2-11 (6.0-7.0)032310	ARS1-10-00630-015	ASP-A-009	TH-232	0.719497	0.122157	0.149947	0.032335	0.008908	pCi	g	ARS1-B10-02075	0.64767	1						
ARS1-B10-02075-20	TLS-SB-IA2-3 (10.0-11.0)032310	ARS1-10-00630-018	ASP-A-009	TH-232	0.740211	0.110977	0.142546	0.036283	0.012377	pCi	g	ARS1-B10-02075	0.8271	1						
ARS1-B10-02075-21	TLS-SB-IA2-3 (10.0-11.0)032310D	ARS1-10-00630-019	ASP-A-009	TH-232	0.911951	0.144444	0.181693	0.016139	0	pCi	g	ARS1-B10-02075	0.62221	1						
ARS1-B10-02075-22	TLS-SB-IA2-3 (13.5-14.5)032310	ARS1-10-00630-020	ASP-A-009	TH-232	0.34194	0.074716	0.085383	0.031876	0.010336	pCi	g	ARS1-B10-02075	0.92522	1						
ARS1-B10-02075-23	TLS-SB-IA2-3 (28.0-29.0)032310	ARS1-10-00630-021	ASP-A-009	TH-232	0.569436	0.09443	0.116848	0.021841	0.005423	pCi	g	ARS1-B10-02075	0.87483	1						
ARS1-B10-02075-19	TLS-SB-IA2-3 (5.0-6.0)032310	ARS1-10-00630-017	ASP-A-009	TH-232	0.555059	0.095354	0.116588	0.024649	0.006586	pCi	g	ARS1-B10-02075	0.86543	1						
ARS1-B10-02075-09	TLS-SB-IA2-DOE-B1 (2.8-3.8)032310	ARS1-10-00630-007	ASP-A-009	TH-232	0.847867	0.131354	0.166597	0.028399	0.007051	pCi	g	ARS1-B10-02075	0.69765	1						
ARS1-B10-02075-10	TLS-SB-IA2-DOE-B1 (3.8-4.8)032310	ARS1-10-00630-008	ASP-A-009	TH-232	0.912814	0.139239	0.177648	0.040106	0.01265	pCi	g	ARS1-B10-02075	0.72689	1						
ARS1-B10-02075-11	TLS-SB-IA2-DOE-B1 (4.8-5.8)032310	ARS1-10-00630-009	ASP-A-009	TH-232	0.662496	0.115265	0.140346	0.027955	0.00694	pCi	g	ARS1-B10-02075	0.71482	1						
ARS1-B10-02075-12	TLS-SB-IA2-DOE-B1 (5.8-6.8)032310	ARS1-10-00630-010	ASP-A-009	TH-232	0.682442	0.144672	0.166532	0.066848	0.022994	pCi	g	ARS1-B10-02075	0.4462	1						
ARS1-B10-02075-13	TLS-SS-IA2-11 (0.0-0.6)032310	ARS1-10-00630-011	ASP-A-009	TH-232	0.804665	0.125939	0.159118	0.04065	0.013486	pCi	g	ARS1-B10-02075	0.73626	1						
ARS1-B10-02075-18	TLS-SS-IA2-3 (0.5-1.0)032310	ARS1-10-00630-016	ASP-A-009	TH-232	0.501375	0.081064	0.101209	0.009246	0	pCi	g	ARS1-B10-02075	1.10999	1						
ARS1-B10-02075-08	TLS-SS-IA2-DOE-B1 (0.5-1.0)032310	ARS1-10-00630-006	ASP-A-009	TH-232	0.606047	0.101735	0.12536	0.02858	0.008324	pCi	g	ARS1-B10-02075	0.835	1						
ARS1-B10-02087-04	TLS-SB-IA1-11 (13.4-14.4)031210	ARS1-10-00578-014	ASP-A-009	TH-228	1.229927	0.168436	0.22465	0.073211	0.028807	pCi	g	ARS1-B10-02087	0.67084	1						
ARS1-B10-02087-05	TLS-SB-IA1-11 (14.4-15.4)031210	ARS1-10-00578-015	ASP-A-009	TH-228	1.311083	0.188034	0.245898	0.07293	0.027236	pCi	g	ARS1-B10-02087	0.56951	1						
ARS1-B10-02087-06	TLS-SB-IA1-11 (16.8-17.8)031210	ARS1-10-00578-016	ASP-A-009	TH-228	0.496089	0.085486	0.104416	0.037005	0.013491	pCi	g	ARS1-B10-02087	1.06406	1						
ARS1-B10-02087-07	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	ASP-A-009	TH-228	0.723797	0.121566	0.149769	0.063682	0.025074	pCi	g	ARS1-B10-02087	0.75309	1						
ARS1-B10-02087-08	TLS-SB-IA1-4 (10.8-11.8)031210	ARS1-10-00578-018	ASP-A-009	TH-228	1.677367	0.207812	0.290317	0.067443	0.024824	pCi	g	ARS1-B10-02087	0.59654	1						
ARS1-B10-02087-09	TLS-SB-IA1-4 (19.0-20.0)031210	ARS1-10-00578-019	ASP-A-009	TH-228	0.713462	0.128017	0.15435	0.063533	0.024071	pCi	g	ARS1-B10-02087	0.67102	1						
ARS1-B10-02087-10	TLS-SB-IA1-4 (21.3-22.3)031210	ARS1-10-00578-020	ASP-A-009	TH-228	0.595029	0.12417	0.143493	0.085619	0.034682	pCi	g	ARS1-B10-02087	0.67583	1						
ARS1-B10-02087-11	TLS-SB-IA1-4 (22.8-23.8)031210	ARS1-10-00578-021	ASP-A-009	TH-228	0.611847	0.11581	0.137406	0.069365	0.027573	pCi	g	ARS1-B10-02087	0.71796	1						
ARS1-B10-02087-12	TLS-SS-IA3-D08 (0.6-1.1)031210	ARS1-10-00578-022	ASP-A-009	TH-228	0.816235	0.12779	0.161438	0.059072	0.022798	pCi	g	ARS1-B10-02087	0.74757	1						
ARS1-B10-02087-13	TLS-SB-IA3-D08 (1.8-2.8)031210	ARS1-10-00578-023	ASP-A-009	TH-228	1.073302	0.168024	0.212272	0.065094	0.023528	pCi	g	ARS1-B10-02087	0.56516	1						
ARS1-B10-02087-14	TLS-SB-IA3-D08 (3.0-4.0)031210	ARS1-10-00578-024	ASP-A-009	TH-228	0.77079	0.118777	0.150952	0.054081	0.020868	pCi	g	ARS1-B10-02087	0.74352	1						
ARS1-B10-02087-15	TLS-SB-IA3-D08 (6.0-7.0)031210	ARS1-10-00578-025	ASP-A-009	TH-228	0.851034	0.129577	0.165438	0.055798	0.021205	pCi	g	ARS1-B10-02087	0.76992	1						
ARS1-B10-02087-16	TLS-SB-IA3-D08 (10.0-11.0)031210	ARS1-10-00578-026	ASP-A-009	TH-228	0.781932	0.115289	0.149072	0.047308	0.017863	pCi	g	ARS1-B10-02087	0.74174	1						
ARS1-B10-02087-17	TLS-SS-IA1-16 (0.6-1.1)03121C	ARS1-10-00578-027	ASP-A-009	TH-228	1.091991	0.149249	0.199233	0.06477	0.025488	pCi	g	ARS1-B10-02087	0.76233	1						
ARS1-B10-02087-18	TLS-SB-IA1-16 (6.2-7.2)031210	ARS1-10-00578-028	ASP-A-009	TH-228	2.313149	0.317574	0.423097	0.146144	0.058433	pCi	g	ARS1-B10-02087	0.36882	1						
ARS1-B10-02087-19	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121C	ARS1-10-00578-029	ASP-A-009	TH-228	1.630649	0.221502	0.296487	0.097486	0.038588	pCi	g	ARS1-B10-02087	0.50909	1						
ARS1-B10-02087-20	TLS-SB-IA1-16 (13.2-14.2)031210	ARS1-10-00578-030	ASP-A-009	TH-228	0.798926	0.104728	0.142448	0.043718	0.017202	pCi	g	ARS1-B10-02087	1.1227	1						
ARS1-B10-02087-21	TLS-SB-IA1-16 (13.2-14.2)031210D	ARS1-10-00578-031	ASP-A-009	TH-228	1.969642	0.212151	0.318868	0.062596	0.023377	pCi	g	ARS1-B10-02087	0.6313	1						
ARS1-B10-02087-22	TLS-SB-IA1-16 (19.0-20.0)031210	ARS1-10-00578-032	ASP-A-009	TH-228	0.564391	0.098594	0.119891	0.043226	0.015758	pCi	g	ARS1-B10-02087	0.91189	1						
ARS1-B10-02087-23	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	ASP-A-009	TH-228	0.710021	0.122706	0.149736	0.06592	0.025956	pCi	g	ARS1-B10-02087	0.71537	1						
ARS1-B10-02087-04	TLS-SB-IA1-11 (13.4-14.4)031210	ARS1-10-00578-014	ASP-A-009	TH-230	2.641416	0.237215	0.397727	0.047874	0.016475	pCi	g	ARS1-B10-02087	0.67084	1			6.15	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-05	TLS-SB-IA1-11 (14.4-15.4)031210	ARS1-10-00578-015	ASP-A-009	TH-230	2.450698	0.247769	0.38616	0.026656	0.004496	pCi	g	ARS1-B10-02087	0.56951	1			5.85	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-06	TLS-SB-IA1-11 (16.8-17.8)031210	ARS1-10-00578-016	ASP-A-009	TH-230	0.712256	0.09906	0.131237	0.028527	0.009467	pCi	g	ARS1-B10-02087	1.06406	1			3.80	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-07	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	ASP-A-009	TH-230	1.244468	0.151594	0.213549	0.032475	0.009762	pCi	g	ARS1-B10-02087	0.75309	1			4.87	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-08	TLS-SB-IA1-4 (10.8-11.8)031210	ARS1-10-00578-018	ASP-A-009	TH-230	2.123824	0.227076	0.342712	0.04612	0.014547	pCi	g	ARS1-B10-02087	0.59654	1			5.63	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-09	TLS-SB-IA1-4 (19.0-20.0)031210	ARS1-10-00578-019	ASP-A-009	TH-230	1.294294	0.165062	0.22741	0.039889	0.012581	pCi	g	ARS1-B10-02087	0.67102	1			4.80	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-10	TLS-SB-IA1-4 (21.3-22.3)031210	ARS1-10-00578-020	ASP-A-009	TH-230	3.150395	0.264191	0.463437	0.04624	0.015343	pCi	g	ARS1-B10-02087	0.67583	1			6.39	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-11	TLS-SB-IA1-4 (22.8-23.8)031210	ARS1-10-00578-021	ASP-A-009	TH-230	1.255923	0.156042	0.217692	0.032402	0.009398	pCi	g	ARS1-B10-02087	0.71796	1			4.83	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-12	TLS-SS-IA3-D08 (0.6-1.1)031210	ARS1-10-00578-022	ASP-A-009	TH-230	1.16167	0.146128	0.202646	0.030881	0.008992	pCi	g	ARS1-B10-02087	0.74757	1			4.72	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-13	TLS-SB-IA3-D08 (1.8-2.8)031210	ARS1-10-00578-023	ASP-A-009	TH-230	1.190352	0.171884	0.224146	0.051308	0.017022	pCi	g	ARS1-B10-02087	0.56516	1			4.42	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-14	TLS-SB-IA3-D08 (3.0-4.0)031210	ARS1-10-00578-024	ASP-A-009	TH-230	0.932407	0.125461	0.168641	0.030396	0.00929	pCi	g	ARS1-B10-02087	0.74352	1			4.29	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-15	TLS-SB-IA3-D08 (6.0-7.0)031210	ARS1-10-00578-025	ASP-A-009	TH-230	0.881582	0.127436	0.16611	0.038071	0.012628	pCi	g	ARS1-B10-02087	0.76992	1			4.06	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-16	TLS-SB-IA3-D08 (10.0-11.0)031210	ARS1-10-00578-026	ASP-A-009	TH-230	0.680569	0.103823	0.132457	0.026534	0.007724	pCi	g	ARS1-B10-02087	0.74174	1			3.55	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-17	TLS-SS-IA1-16 (0.6-1.1)03121C	ARS1-10-00578-027	ASP-A-009	TH-230	1.735736	0.180337	0.27664	0.026223	0.006515	pCi	g	ARS1-B10-02087	0.76233	1			5.55	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-18	TLS-SB-IA1-16 (6.2-7.2)031210	ARS1-10-00578-028	ASP-A-009	TH-230	16.96195	0.820716	2.208211	0.055652	0.013825	pCi	g	ARS1-B10-02087	0.36882	1			7.60	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-19	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121C	ARS1-10-00578-029	ASP-A-009	TH-230	23.6672	0.807557	2.972238	0.054321	0.017448	pCi	g	ARS1-B10-02087	0.50909	1			7.90	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-20	TLS-SB-IA1-16 (13.2-14.2)031210	ARS1-10-00578-030	ASP-A-009	TH-230	73.77948	0.965269	8.969116	0.028572	0.009832	pCi	g	ARS1-B10-02087	1.1227	1			8.21	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-21	TLS-SB-IA1-16 (13.2-14.2)031210D	ARS1-10-00578-031	ASP-A-009	TH-230	308.4606	2.573932	37.36945	0.022866	0.003857	pCi	g	ARS1-B10-02087	0.6313	1			8.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-22	TLS-SB-IA1-16 (19.0-20.0)031210	ARS1-10-00578-032	ASP-A-009	TH-230	1.785551	0.168878	0.274027	0.033304	0.011052	pCi	g	ARS1-B10-02087	0.91189	1			5.78	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-23	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	ASP-A-009	TH-230	0.973837	0.136996	0.180612	0.033826	0.010169	pCi	g	ARS1-B10-02087	0.71537	1			4.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02087-04	TLS-SB-IA1-11 (13.4-14.4)031210	ARS1-10-00578-014	ASP-A-009	TH-232	0.913076	0.140152	0.178384	0.046873	0.015989	pCi	g	ARS1-B10-02087	0.67084	1						
ARS1-B10-02087-05	TLS-SB-IA1-11 (14.4-15.4)031210	ARS1-10-00578-015	ASP-A-009	TH-232	1.17913	0.171651	0.223099	0.017627	0	pCi	g	ARS1-B10-02087	0.56951	1						
ARS1-B10-02087-06	TLS-SB-IA1-11 (16.8-17.8)031210	ARS1-10-00578-016	ASP-A-009	TH-232	0.520828	0.084729	0.105553	0.027238	0.008832	pCi	g	ARS1-B10-02087	1.06406	1						
ARS1-B10-02087-07	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	ASP-A-009	TH-232	0.761497	0.11836	0.149931	0.025674	0.006375	pCi	g	ARS1-B10-02087	0.75309	1						
ARS1-B10-02087-08	TLS-SB-IA1-4 (10.8-11.8)031210	ARS1-10-00578-018	ASP-A-009	TH-232	1.278327	0.176048	0.234229	0.0407	0.011853	pCi	g	ARS1-B10-02087	0.59654	1						
ARS1-B10-02087-09	TLS-SB-IA1-4 (19.0-20.0)031210	ARS1-10-00578-019	ASP-A-009	TH-232	0.737973	0.124299	0.152988	0.029196	0.007249	pCi	g	ARS1-B10-02087	0.67102	1						
ARS1-B10-02087-10	TLS-SB-IA1-4 (21.3-22.3)031210	ARS1-10-00578-020	ASP-A-009	TH-232	0.650578	0.120687	0.144041	0.042044	0.013261	pCi	g	ARS1-B10-02087	0.67583	1						
ARS1-B10-02087-11	TLS-SB-IA1-4 (22.8-23.8)031210	ARS1-10-00578-021	ASP-A-009	TH-232	0.715893	0.11766	0.146049	0.026971	0.006696	pCi	g	ARS1-B10-02087	0.71796	1						
ARS1-B10-02087-12	TLS-SS-IA3-D08 (0.6-1.1)031210	ARS1-10-00578-022	ASP-A-009	TH-232	0.61438	0.107219	0.130421	0.041249	0.014189	pCi	g	ARS1-B10-02087	0.74757	1						
ARS1-B10-02087-13	TLS-SB-IA3-D08 (1.8-2.8)031210	ARS1-10-00578-023	ASP-A-009	TH-232	0.876063	0.147674	0.18171	0.051206	0.016988	pCi	g	ARS1-B10-02087	0.56516	1						
ARS1-B10-02087-14	TLS-SB-IA3-D08 (3.0-4.0)031210	ARS1-10-00578-024	ASP-A-009	TH-232	0.853301	0.119853	0.158116	0.028616	0.008412	pCi	g	ARS1-B10-02087	0.74352	1						
ARS1-B10-02087-15	TLS-SB-IA3-D08 (6.0-7.0)031210	ARS1-10-00578-025	ASP-A-009	TH-232	0.758694	0.117516	0.149058	0.025391	0.006302	pCi	g	ARS1-B10-02087	0.76992	1						
ARS1-B10-02087-16	TLS-SB-IA3-D08 (10.0-11.0)031210	ARS1-10-00578-026	ASP-A-009	TH-232	0.690833	0.104693	0.13391	0.029946	0.009441	pCi	g	ARS1-B10-02087	0.74174	1						
ARS1-B10-02087-17	TLS-SS-IA1-16 (0.6-1.1)03121C	ARS1-10-00578-027	ASP-A-009	TH-232	0.890549	0.129283	0.168222	0.029321	0.008077	pCi	g	ARS1-B10-02087	0.76233	1						
ARS1-B10-02087-18	TLS-SB-IA1-16 (6.2-7.2)031210	ARS1-10-00578-028	ASP-A-009	TH-232	2.541139	0.317283	0.44158	0.027946	0	pCi	g	ARS1-B10-02087	0.36882	1						
ARS1-B10-02087-19	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121C	ARS1-10-00578-029	ASP-A-009	TH-232	1.308768	0.190112	0.247312	0.041635	0.011124	pCi	g	ARS1-B10-02087	0.50909	1						
ARS1-B10-02087-20	TLS-SB-IA1-16 (13.2-14.2)031210	ARS1-10-00578-030	ASP-A-009	TH-232	0.810766	0.101717	0.141238	0.027974	0.009542	pCi	g	ARS1-B10-02087	1.1227	1						
ARS1-B10-02087-21	TLS-SB-IA1-16 (13.2-14.2)031210D	ARS1-10-00578-031	ASP-A-009	TH-232	3.375992	0.269006	0.488721	0.015121	0	pCi	g	ARS1-B10-02087	0.6313	1						
ARS1-B10-02087-22	TLS-SB-IA1-16 (19.0-20.0)031210	ARS1-10-00578-032	ASP-A-009	TH-232	0.552749	0.094385	0.115635	0.031799	0.010311	pCi	g	ARS1-B10-02087	0.91189	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02087-23	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	ASP-A-009	TH-232	0.582009	0.105684	0.126953	0.026742	0.00664	pCi	g	ARS1-B10-02087	0.71537	1						
ARS1-B10-02094-16	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	ASP-A-009	TH-228	1.394093	0.240358	0.293532	0.121252	0.046795	pCi	g	ARS1-B10-02094	0.37463	1						
ARS1-B10-02094-17	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	ASP-A-009	TH-228	1.917812	0.284719	0.367138	0.133267	0.052442	pCi	g	ARS1-B10-02094	0.37353	1						
ARS1-B10-02094-18	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	ASP-A-009	TH-228	2.007115	0.311252	0.394618	0.159791	0.063889	pCi	g	ARS1-B10-02094	0.33296	1						
ARS1-B10-02094-19	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	ASP-A-009	TH-228	0.450026	0.076961	0.094241	0.041659	0.01649	pCi	g	ARS1-B10-02094	1.0183	1						
ARS1-B10-02094-21	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	ASP-A-009	TH-228	0.529976	0.122519	0.138252	0.073347	0.027392	pCi	g	ARS1-B10-02094	0.56712	1						
ARS1-B10-02094-22	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	ASP-A-009	TH-228	0.606138	0.10204	0.125614	0.04322	0.015756	pCi	g	ARS1-B10-02094	0.84941	1						
ARS1-B10-02094-23	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	ASP-A-009	TH-228	0.857927	0.136361	0.171306	0.068005	0.026776	pCi	g	ARS1-B10-02094	0.67897	1						
ARS1-B10-02094-11	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	ASP-A-009	TH-228	0.674871	0.112042	0.138587	0.057986	0.022818	pCi	g	ARS1-B10-02094	0.85488	1						
ARS1-B10-02094-14	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	ASP-A-009	TH-228	0.838814	0.138211	0.171406	0.078293	0.031715	pCi	g	ARS1-B10-02094	0.75008	1						
ARS1-B10-02094-12	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	ASP-A-009	TH-228	0.933872	0.143627	0.182669	0.057256	0.021075	pCi	g	ARS1-B10-02094	0.69531	1						
ARS1-B10-02094-13	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	ASP-A-009	TH-228	0.836411	0.137778	0.170885	0.063252	0.023964	pCi	g	ARS1-B10-02094	0.65359	1						
ARS1-B10-02094-09	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	ASP-A-009	TH-228	0.727187	0.124499	0.152396	0.05971	0.022692	pCi	g	ARS1-B10-02094	0.69461	1						
ARS1-B10-02094-05	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	ASP-A-009	TH-228	1.153374	0.243653	0.28071	0.127153	0.046354	pCi	g	ARS1-B10-02094	0.31216	1						
ARS1-B10-02094-06	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	ASP-A-009	TH-228	0.352866	0.07192	0.083614	0.044549	0.017541	pCi	g	ARS1-B10-02094	1.00368	1						
ARS1-B10-02094-07	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	ASP-A-009	TH-228	0.542514	0.124883	0.14105	0.069031	0.02495	pCi	g	ARS1-B10-02094	0.46191	1						
ARS1-B10-02094-08	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	ASP-A-009	TH-228	0.790723	0.129666	0.161079	0.062481	0.024109	pCi	g	ARS1-B10-02094	0.7869	1						
ARS1-B10-02094-15	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	ASP-A-009	TH-228	0.758045	0.127481	0.156988	0.068937	0.027403	pCi	g	ARS1-B10-02094	0.74998	1						
ARS1-B10-02094-20	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	ASP-A-009	TH-228	0.59014	0.101286	0.12388	0.053972	0.021237	pCi	g	ARS1-B10-02094	0.90856	1						
ARS1-B10-02094-10	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	ASP-A-009	TH-228	0.8348	0.129039	0.163801	0.055333	0.020893	pCi	g	ARS1-B10-02094	0.76201	1						
ARS1-B10-02094-04	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	ASP-A-009	TH-228	0.834133	0.127819	0.162792	0.052754	0.019701	pCi	g	ARS1-B10-02094	0.79721	1						
ARS1-B10-02094-16	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	ASP-A-009	TH-230	2.251179	0.291709	0.3989	0.063483	0.018485	pCi	g	ARS1-B10-02094	0.37463	1						
ARS1-B10-02094-17	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	ASP-A-009	TH-230	4.328691	0.408805	0.663947	0.054051	0.013429	pCi	g	ARS1-B10-02094	0.37353	1						
ARS1-B10-02094-18	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	ASP-A-009	TH-230	5.675649	0.497093	0.847139	0.060958	0.015143	pCi	g	ARS1-B10-02094	0.33296	1						
ARS1-B10-02094-19	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	ASP-A-009	TH-230	0.520116	0.078807	0.100807	0.023255	0.007469	pCi	g	ARS1-B10-02094	1.0183	1						
ARS1-B10-02094-21	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	ASP-A-009	TH-230	0.810998	0.143097	0.173448	0.026842	0.004528	pCi	g	ARS1-B10-02094	0.56712	1						
ARS1-B10-02094-22	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	ASP-A-009	TH-230	0.976547	0.125312	0.172143	0.03336	0.011071	pCi	g	ARS1-B10-02094	0.84941	1						
ARS1-B10-02094-23	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	ASP-A-009	TH-230	1.524852	0.173457	0.253085	0.034726	0.010439	pCi	g	ARS1-B10-02094	0.67897	1						
ARS1-B10-02094-11	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	ASP-A-009	TH-230	0.856407	0.120079	0.158532	0.023528	0.005845	pCi	g	ARS1-B10-02094	0.85488	1						
ARS1-B10-02094-14	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	ASP-A-009	TH-230	1.061619	0.147383	0.195409	0.042356	0.014054	pCi	g	ARS1-B10-02094	0.75008	1						
ARS1-B10-02094-12	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	ASP-A-009	TH-230	1.020604	0.145486	0.19074	0.03922	0.01237	pCi	g	ARS1-B10-02094	0.69531	1						
ARS1-B10-02094-13	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	ASP-A-009	TH-230	0.846117	0.133565	0.168217	0.039781	0.012547	pCi	g	ARS1-B10-02094	0.65359	1						
ARS1-B10-02094-09	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	ASP-A-009	TH-230	0.979587	0.139046	0.182622	0.040809	0.013537	pCi	g	ARS1-B10-02094	0.69461	1						
ARS1-B10-02094-05	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	ASP-A-009	TH-230	2.227894	0.325264	0.422255	0.0982	0.032589	pCi	g	ARS1-B10-02094	0.31216	1						
ARS1-B10-02094-06	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	ASP-A-009	TH-230	0.35243	0.06783	0.080096	0.022761	0.006842	pCi	g	ARS1-B10-02094	1.00368	1						
ARS1-B10-02094-07	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	ASP-A-009	TH-230	1.07296	0.168401	0.212545	0.054503	0.018082	pCi	g	ARS1-B10-02094	0.46191	1						
ARS1-B10-02094-08	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	ASP-A-009	TH-230	0.832079	0.127647	0.162502	0.035176	0.010751	pCi	g	ARS1-B10-02094	0.7869	1						
ARS1-B10-02094-15	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	ASP-A-009	TH-230	0.959674	0.136203	0.178897	0.032257	0.009356	pCi	g	ARS1-B10-02094	0.74998	1						
ARS1-B10-02094-20	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	ASP-A-009	TH-230	0.909811	0.120077	0.162818	0.035338	0.012161	pCi	g	ARS1-B10-02094	0.90856	1						
ARS1-B10-02094-10	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	ASP-A-009	TH-230	0.80769	0.122422	0.156577	0.031088	0.00905	pCi	g	ARS1-B10-02094	0.76201	1						
ARS1-B10-02094-04	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	ASP-A-009	TH-230	1.065165	0.139074	0.189512	0.019316	0.003258	pCi	g	ARS1-B10-02094	0.79721	1						
ARS1-B10-02094-16	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	ASP-A-009	TH-232	1.337691	0.226679	0.278428	0.084798	0.029169	pCi	g	ARS1-B10-02094	0.37463	1						
ARS1-B10-02094-17	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	ASP-A-009	TH-232	1.730188	0.25876	0.332692	0.060437	0.016649	pCi	g	ARS1-B10-02094	0.37353	1						
ARS1-B10-02094-18	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	ASP-A-009	TH-232	1.7234	0.273465	0.343756	0.030611	0	pCi	g	ARS1-B10-02094	0.33296	1						
ARS1-B10-02094-19	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	ASP-A-009	TH-232	0.355165	0.064889	0.077803	0.017824	0.004762	pCi	g	ARS1-B10-02094	1.0183	1						
ARS1-B10-02094-21	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	ASP-A-009	TH-232	0.759319	0.138226	0.165917	0.017751	0	pCi	g	ARS1-B10-02094	0.56712	1						
ARS1-B10-02094-22	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	ASP-A-009	TH-232	0.620556	0.099999	0.125	0.031852	0.010329	pCi	g	ARS1-B10-02094	0.84941	1						
ARS1-B10-02094-23	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	ASP-A-009	TH-232	0.678906	0.115612	0.14177	0.027453	0.006817	pCi	g	ARS1-B10-02094	0.67897	1						
ARS1-B10-02094-11	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	ASP-A-009	TH-232	0.599022	0.100528	0.123885	0.026308	0.007247	pCi	g	ARS1-B10-02094	0.85488	1						
ARS1-B10-02094-14	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	ASP-A-009	TH-232	0.70165	0.119801	0.146777	0.038513	0.012147	pCi	g	ARS1-B10-02094	0.75008	1						
ARS1-B10-02094-12	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	ASP-A-009	TH-232	0.62055	0.113385	0.135946	0.034611	0.01008	pCi	g	ARS1-B10-02094	0.69531	1						
ARS1-B10-02094-13	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	ASP-A-009	TH-232	0.643524	0.115955	0.139623	0.029116	0.007229	pCi	g	ARS1-B10-02094	0.65359	1						
ARS1-B10-02094-09	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	ASP-A-009	TH-232	0.664999	0.113961	0.139452	0.027218	0.006755	pCi	g	ARS1-B10-02094	0.69461	1						
ARS1-B10-02094-05	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	ASP-A-009	TH-232	1.422776	0.260345	0.312008	0.093763	0.030404	pCi	g	ARS1-B10-02094	0.31216	1						
ARS1-B10-02094-06	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	ASP-A-009	TH-232	0.278872	0.060077	0.068886	0.017994	0.004468	pCi	g	ARS1-B10-02094	1.00368	1						
ARS1-B10-02094-07	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	ASP-A-009	TH-232	0.696573	0.136145	0.160073	0.054394	0.018045	pCi	g	ARS1-B10-02094	0.46191	1						
ARS1-B10-02094-08	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	ASP-A-009	TH-232	0.779074	0.123314	0.155153	0.033117	0.009735	pCi	g	ARS1-B10-02094	0.7869	1						
ARS1-B10-02094-15	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	ASP-A-009	TH-232	0.629963	0.110159	0.13391	0.02685	0.006666	pCi	g	ARS1-B10-02094	0.74998	1						
ARS1-B10-02094-20	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	ASP-A-009	TH-232	0.369928	0.077223	0.089232	0.034598	0.011802	pCi	g	ARS1-B10-02094	0.90856	1						
ARS1-B10-02094-10	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	ASP-A-009	TH-232	0.745602	0.117788	0.148305	0.035086	0.011062	pCi	g	ARS1-B10-02094	0.76201	1						
ARS1-B10-02094-04	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	ASP-A-009	TH-232	0.751221	0.116632	0.147805	0.012774	0	pCi	g	ARS1-B10-02094	0.79721	1						
ARS1-B10-02114-13	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	ASP-A-009	TH-228	0.820405	0.131256	0.164498	0.065707	0.025854	pCi	g	ARS1-B10-02114	0.67589	1						
ARS1-B10-02114-14	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	ASP-A-009	TH-228	0.766162	0.129563	0.159251	0.058598	0.021884	pCi	g	ARS1-B10-02114	0.7081	1						
ARS1-B10-02114-11	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	ASP-A-009	TH-228	0.621282	0.115729	0.137954	0.069665	0.027854	pCi	g	ARS1-B10-02114	0.72969	1						
ARS1-B10-02114-12	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	ASP-A-009	TH-228	1.272622	0.256329	0.298935	0.159716	0.06322	pCi	g	ARS1-B10-02114	0.29733	1						
ARS1-B10-02114-06	TLS-SB-IA2-7 (10.5-11.5)03221C	ARS1-10-00629-003	ASP-A-009	TH-228	3.107357	0.384009	0.537127	0.118663	0.042889	pCi	g	ARS1-B10-02114	0.32473	1						
ARS1-B10-02114-07	TLS-SB-IA2-7 (13.0-14.0)03221C	ARS1-10-00629-004	ASP-A-009	TH-228	3.396894	0.391285	0.567147	0.135734	0.052374	pCi	g	ARS1-B10-02114	0.36356	1						
ARS1-B10-02114-08	TLS-SB-IA2-7 (13.0-14.0)03221CD	ARS1-10-00629-005	ASP-A-009	TH-228	2.889365	0.370825	0.509371	0.136058	0.051706	pCi	g	ARS1-B10-02114	0.3058	1						
ARS1-B10-02114-09	TLS-SB-IA2-7 (23.0-24.0)03221C	ARS1-10-00629-006	ASP-A-009	TH-228	0.736041	0.148251	0.172893	0.080857	0.03053	pCi	g	ARS1-B10-02114	0.53356	1						
ARS1-B10-02114-05	TLS-SB-IA2-7 (4.0-5.0)03221C	ARS1-10-00629-002	ASP-A-009	TH-228	0.81846	0.128625	0.162264	0.059665	0.023027	pCi	g	ARS1-B10-02114	0.75954	1						
ARS1-B10-02114-21	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	ASP-A-009	TH-228	1.176354	0.167759	0.219902	0.071165	0.027465	pCi	g	ARS1-B10-02114	0.62301	1						
ARS1-B10-02114-22	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	ASP-A-009	TH-228	3.038211	0.345004	0.503849	0.098228	0.035503	pCi	g	ARS1-B10-02114	0.38585	1						
ARS1-B10-02114-19	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	ASP-A-009	TH-228	0.712149	0.130305	0.156165	0.080681	0.032682	pCi	g	ARS1-B10-02114	0.70767	1						
ARS1-B10-02114-16	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	ASP-A-009	TH-228	0.686453	0.103837	0.132911	0.049527	0.019501	pCi	g	ARS1-B10-02114	0.93937	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02114-17	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	ASP-A-009	TH-228	0.719677	0.122934	0.150593	0.054058	0.019898	pCi	g	ARS1-B10-02114	0.71161	1						
ARS1-B10-02114-18	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	ASP-A-009	TH-228	0.854325	0.14253	0.176	0.0662	0.025082	pCi	g	ARS1-B10-02114	0.64246	1						
ARS1-B10-02114-10	TLS-SS-IA2-13 (0.0-0.5)03221C	ARS1-10-00629-007	ASP-A-009	TH-228	0.439011	0.081395	0.097162	0.046414	0.018264	pCi	g	ARS1-B10-02114	1.05142	1						
ARS1-B10-02114-04	TLS-SS-IA2-7 (0.4-1.0)03221C	ARS1-10-00629-001	ASP-A-009	TH-228	0.716451	0.145542	0.169353	0.092522	0.036778	pCi	g	ARS1-B10-02114	0.54816	1						
ARS1-B10-02114-20	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	ASP-A-009	TH-228	0.789462	0.124506	0.156862	0.063616	0.025288	pCi	g	ARS1-B10-02114	0.74235	1						
ARS1-B10-02114-15	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	ASP-A-009	TH-228	0.695171	0.109296	0.137858	0.043417	0.015828	pCi	g	ARS1-B10-02114	0.88474	1						
ARS1-B10-02114-13	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	ASP-A-009	TH-230	0.950978	0.136069	0.178115	0.043304	0.014902	pCi	g	ARS1-B10-02114	0.67589	1		J	1.53	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-14	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	ASP-A-009	TH-230	1.047553	0.145803	0.193101	0.021585	0.003641	pCi	g	ARS1-B10-02114	0.7081	1		J	1.86	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-11	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	ASP-A-009	TH-230	0.740055	0.119096	0.148943	0.026752	0.006646	pCi	g	ARS1-B10-02114	0.72969	1		J	0.66	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-12	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	ASP-A-009	TH-230	1.481702	0.261895	0.317267	0.089746	0.028826	pCi	g	ARS1-B10-02114	0.29733	1			2.53	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-06	TLS-SB-IA2-7 (10.5-11.5)03221C	ARS1-10-00629-003	ASP-A-009	TH-230	4.377752	0.445286	0.691537	0.094288	0.03128	pCi	g	ARS1-B10-02114	0.32473	1			5.35	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-07	TLS-SB-IA2-7 (13.0-14.0)03221C	ARS1-10-00629-004	ASP-A-009	TH-230	4.003145	0.41284	0.636019	0.076905	0.023504	pCi	g	ARS1-B10-02114	0.36356	1			5.22	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-08	TLS-SB-IA2-7 (13.0-14.0)032210D	ARS1-10-00629-005	ASP-A-009	TH-230	3.07442	0.372347	0.526033	0.093582	0.031042	pCi	g	ARS1-B10-02114	0.3058	1			4.54	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-09	TLS-SB-IA2-7 (23.0-24.0)03221C	ARS1-10-00629-006	ASP-A-009	TH-230	1.317546	0.189536	0.24755	0.045717	0.013308	pCi	g	ARS1-B10-02114	0.53356	1			2.51	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-05	TLS-SB-IA2-7 (4.0-5.0)03221C	ARS1-10-00629-002	ASP-A-009	TH-230	1.517803	0.168445	0.249048	0.031443	0.009156	pCi	g	ARS1-B10-02114	0.75954	1			3.21	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-21	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	ASP-A-009	TH-230	2.164449	0.219586	0.341542	0.037496	0.010918	pCi	g	ARS1-B10-02114	0.62301	1			4.23	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-22	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	ASP-A-009	TH-230	3.384164	0.356255	0.54241	0.078034	0.025888	pCi	g	ARS1-B10-02114	0.38585	1			4.96	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-19	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	ASP-A-009	TH-230	1.02711	0.147695	0.192935	0.043924	0.014574	pCi	g	ARS1-B10-02114	0.70767	1		J	1.78	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-16	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	ASP-A-009	TH-230	0.846982	0.110784	0.150838	0.02546	0.007654	pCi	g	ARS1-B10-02114	0.93937	1		J	1.18	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-17	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	ASP-A-009	TH-230	0.812176	0.126631	0.160221	0.037264	0.011753	pCi	g	ARS1-B10-02114	0.71161	1		J	0.97	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-18	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	ASP-A-009	TH-230	1.068552	0.153881	0.200893	0.041899	0.013215	pCi	g	ARS1-B10-02114	0.64246	1		J	1.90	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-10	TLS-SS-IA2-13 (0.0-0.5)03221C	ARS1-10-00629-007	ASP-A-009	TH-230	1.528689	0.143842	0.23415	0.018949	0.004708	pCi	g	ARS1-B10-02114	1.05142	1			3.40	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-04	TLS-SS-IA2-7 (0.4-1.0)03221C	ARS1-10-00629-001	ASP-A-009	TH-230	1.540721	0.20048	0.273619	0.043577	0.012639	pCi	g	ARS1-B10-02114	0.54816	1			3.05	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02114-20	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	ASP-A-009	TH-230	0.932345	0.129354	0.171552	0.029956	0.008689	pCi	g	ARS1-B10-02114	0.74235	1		J	1.48	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-15	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	ASP-A-009	TH-230	0.751886	0.110768	0.143274	0.033736	0.011196	pCi	g	ARS1-B10-02114	0.88474	1		J	0.73	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02114-13	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	ASP-A-009	TH-232	0.458492	0.095152	0.110111	0.042398	0.014462	pCi	g	ARS1-B10-02114	0.67589	1						
ARS1-B10-02114-14	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	ASP-A-009	TH-232	0.645706	0.114306	0.138406	0.014274	0	pCi	g	ARS1-B10-02114	0.7081	1						
ARS1-B10-02114-11	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	ASP-A-009	TH-232	0.668672	0.112843	0.138798	0.013434	0	pCi	g	ARS1-B10-02114	0.72969	1						
ARS1-B10-02114-12	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	ASP-A-009	TH-232	1.032441	0.217615	0.250852	0.068787	0.018379	pCi	g	ARS1-B10-02114	0.29733	1						
ARS1-B10-02114-06	TLS-SB-IA2-7 (10.5-11.5)03221C	ARS1-10-00629-003	ASP-A-009	TH-232	3.146248	0.377629	0.53591	0.094099	0.031218	pCi	g	ARS1-B10-02114	0.32473	1						
ARS1-B10-02114-07	TLS-SB-IA2-7 (13.0-14.0)03221C	ARS1-10-00629-004	ASP-A-009	TH-232	3.366584	0.378197	0.555509	0.072402	0.021283	pCi	g	ARS1-B10-02114	0.36356	1						
ARS1-B10-02114-08	TLS-SB-IA2-7 (13.0-14.0)032210D	ARS1-10-00629-005	ASP-A-009	TH-232	2.710091	0.348002	0.477901	0.062415	0.01549	pCi	g	ARS1-B10-02114	0.3058	1						
ARS1-B10-02114-09	TLS-SB-IA2-7 (23.0-24.0)03221C	ARS1-10-00629-006	ASP-A-009	TH-232	0.613113	0.130163	0.149778	0.051595	0.016267	pCi	g	ARS1-B10-02114	0.53356	1						
ARS1-B10-02114-05	TLS-SB-IA2-7 (4.0-5.0)03221C	ARS1-10-00629-002	ASP-A-009	TH-232	0.735846	0.118182	0.147907	0.042	0.014447	pCi	g	ARS1-B10-02114	0.75954	1						
ARS1-B10-02114-21	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	ASP-A-009	TH-232	1.022241	0.151884	0.195788	0.050085	0.017228	pCi	g	ARS1-B10-02114	0.62301	1						
ARS1-B10-02114-22	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	ASP-A-009	TH-232	3.153402	0.343642	0.51317	0.077878	0.025836	pCi	g	ARS1-B10-02114	0.38585	1						
ARS1-B10-02114-19	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	ASP-A-009	TH-232	0.837283	0.133142	0.167233	0.039939	0.012597	pCi	g	ARS1-B10-02114	0.70767	1						
ARS1-B10-02114-16	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	ASP-A-009	TH-232	0.571762	0.090818	0.114119	0.020128	0.004998	pCi	g	ARS1-B10-02114	0.93937	1						
ARS1-B10-02114-17	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	ASP-A-009	TH-232	0.735507	0.12019	0.149492	0.032885	0.009577	pCi	g	ARS1-B10-02114	0.71161	1						
ARS1-B10-02114-18	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	ASP-A-009	TH-232	0.806348	0.13315	0.165004	0.030667	0.007614	pCi	g	ARS1-B10-02114	0.64246	1						
ARS1-B10-02114-10	TLS-SS-IA2-13 (0.0-0.5)03221C	ARS1-10-00629-007	ASP-A-009	TH-232	0.46737	0.079699	0.097687	0.021188	0.005837	pCi	g	ARS1-B10-02114	1.05142	1						
ARS1-B10-02114-04	TLS-SS-IA2-7 (0.4-1.0)03221C	ARS1-10-00629-001	ASP-A-009	TH-232	0.745186	0.139306	0.165884	0.036273	0.009005	pCi	g	ARS1-B10-02114	0.54816	1						
ARS1-B10-02114-20	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	ASP-A-009	TH-232	0.595732	0.103228	0.125858	0.024935	0.006191	pCi	g	ARS1-B10-02114	0.74235	1						
ARS1-B10-02114-15	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	ASP-A-009	TH-232	0.698395	0.106601	0.135972	0.032212	0.010445	pCi	g	ARS1-B10-02114	0.88474	1						
ARS1-B10-02129-17	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	ASP-A-009	TH-228	1.303112	0.196445	0.251784	0.08766	0.033824	pCi	g	ARS1-B10-02129	0.56611	1						
ARS1-B10-02129-18	TLS-SB-IA1-3 (24.1-25.1)03151C	ARS1-10-00580-035	ASP-A-009	TH-228	0.695144	0.119453	0.14604	0.057483	0.021845	pCi	g	ARS1-B10-02129	0.74769	1						
ARS1-B10-02129-19	TLS-SB-IA1-3 (26.0-27.0)03151C	ARS1-10-00580-036	ASP-A-009	TH-228	0.847981	0.139398	0.173018	0.063273	0.023891	pCi	g	ARS1-B10-02129	0.69004	1						
ARS1-B10-02129-20	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	ASP-A-009	TH-228	0.731461	0.126627	0.154434	0.068006	0.026761	pCi	g	ARS1-B10-02129	0.73052	1						
ARS1-B10-02129-06	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	ASP-A-009	TH-228	0.656455	0.112176	0.137398	0.059544	0.02343	pCi	g	ARS1-B10-02129	0.83102	1						
ARS1-B10-02129-08	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	ASP-A-009	TH-228	0.650955	0.120912	0.144255	0.05611	0.020455	pCi	g	ARS1-B10-02129	0.71447	1						
ARS1-B10-02129-09	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	ASP-A-009	TH-228	1.321617	0.173348	0.235719	0.072563	0.028571	pCi	g	ARS1-B10-02129	0.65826	1						
ARS1-B10-02129-07	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	ASP-A-009	TH-228	0.710189	0.145132	0.168615	0.077949	0.029111	pCi	g	ARS1-B10-02129	0.53391	1						
ARS1-B10-02129-11	TLS-SB-IA3-D04 (1.4-2.4)03151C	ARS1-10-00580-028	ASP-A-009	TH-228	0.814766	0.146194	0.176266	0.072553	0.027489	pCi	g	ARS1-B10-02129	0.5797	1						
ARS1-B10-02129-14	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	ASP-A-009	TH-228	0.715072	0.18184	0.201333	0.128008	0.049403	pCi	g	ARS1-B10-02129	0.34749	1						
ARS1-B10-02129-12	TLS-SB-IA3-D04 (2.4-3.4)03151C	ARS1-10-00580-029	ASP-A-009	TH-228	1.053989	0.191609	0.23009	0.117998	0.047798	pCi	g	ARS1-B10-02129	0.50177	1						
ARS1-B10-02129-13	TLS-SB-IA3-D04 (3.4-4.4)03151C	ARS1-10-00580-030	ASP-A-009	TH-228	0.894705	0.141511	0.178097	0.07249	0.028815	pCi	g	ARS1-B10-02129	0.71374	1						
ARS1-B10-02129-04	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	ASP-A-009	TH-228	0.571001	0.094479	0.117	0.051355	0.020533	pCi	g	ARS1-B10-02129	1.05084	1						
ARS1-B10-02129-05	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	ASP-A-009	TH-228	0.789433	0.136138	0.166243	0.074234	0.029384	pCi	g	ARS1-B10-02129	0.6562	1						
ARS1-B10-02129-10	TLS-SS-IA3-D04 (0.3-0.8)03151C	ARS1-10-00580-027	ASP-A-009	TH-228	0.786553	0.135893	0.165843	0.06039	0.022228	pCi	g	ARS1-B10-02129	0.66285	1						
ARS1-B10-02129-22	TLS-SB-IA2-5 (2.1-3.1)03241C	ARS1-10-00654-002	ASP-A-009	TH-228	0.546258	0.093551	0.114502	0.050703	0.02007	pCi	g	ARS1-B10-02129	0.98627	1						
ARS1-B10-02129-23	TLS-SB-IA2-5 (5.5-6.5)03241C	ARS1-10-00654-003	ASP-A-009	TH-228	0.916885	0.139487	0.178148	0.066733	0.026258	pCi	g	ARS1-B10-02129	0.71715	1						
ARS1-B10-02129-24	TLS-SB-IA2-5 (9.5-10.5)03241C	ARS1-10-00654-004	ASP-A-009	TH-228	0.800242	0.125136	0.158156	0.052633	0.019656	pCi	g	ARS1-B10-02129	0.78812	1						
ARS1-B10-02129-21	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	ASP-A-009	TH-228	1.023091	0.156959	0.199814	0.079814	0.031912	pCi	g	ARS1-B10-02129	0.66883	1						
ARS1-B10-02129-17	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	ASP-A-009	TH-230	18.27691	0.704642	2.318622	0.049266	0.015057	pCi	g	ARS1-B10-02129	0.56611	1			7.73	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-18	TLS-SB-IA1-3 (24.1-25.1)03151C	ARS1-10-00580-035	ASP-A-009	TH-230	1.439079	0.164829	0.239623	0.039218	0.013009	pCi	g	ARS1-B10-02129	0.74769	1			4.33	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-19	TLS-SB-IA1-3 (26.0-27.0)03151C	ARS1-10-00580-036	ASP-A-009	TH-230	0.725011	0.12405	0.151877	0.035486	0.01033	pCi	g	ARS1-B10-02129	0.69004	1			2.23	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-20	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	ASP-A-009	TH-230	0.932894	0.135578	0.176335	0.027528	0.006839	pCi	g	ARS1-B10-02129	0.73052	1			3.04	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-06	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	ASP-A-009	TH-230	0.610377	0.103725	0.127283	0.03894	0.0134	pCi	g	ARS1-B10-02129	0.83102	1		J	1.79	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02129-08	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	ASP-A-009	TH-230	0.736351	0.124404	0.15296	0.043258	0.014356	pCi	g	ARS1-B10-02129	0.71447	1			2.28	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-09	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	ASP-A-009	TH-230	1.238463	0.161509	0.220204	0.037009	0.011125	pCi	g	ARS1-B10-02129	0.65826	1			3.81	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-07	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	ASP-A-009	TH-230	0.860096	0.151827	0.184004	0.028492	0.004806	pCi	g	ARS1-B10-02129	0.53391	1			2.58	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-11	TLS-SB-IA3-D04 (1.4-2.4)03151C	ARS1-10-00580-028	ASP-A-009	TH-230	1.041587	0.158517	0.202423	0.045557	0.014369	pCi	g	ARS1-B10-02129	0.5797	1			3.21	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-14	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	ASP-A-009	TH-230	0.691858	0.167172	0.186919	0.066912	0.019483	pCi	g	ARS1-B10-02129	0.34749	1		J	1.74	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02129-12	TLS-SB-IA3-D04 (2.4-3.4)03151C	ARS1-10-00580-029	ASP-A-009	TH-230	1.316993	0.201638	0.256893	0.063732	0.021147	pCi	g	ARS1-B10-02129	0.50177	1			3.62	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02129-13	TLS-SB-IA3-D04 (3.4-4.4)03151C	ARS1-10-00580-030	ASP-A-009	TH-230	0.924479	0.137014	0.176797	0.033865	0.009822	pCi	g	ARS1-B10-02129	0.71374	1			2.99	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-04	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	ASP-A-009	TH-230	0.740369	0.101812	0.135546	0.019565	0.00486	pCi	g	ARS1-B10-02129	1.05084	1			2.51	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-05	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	ASP-A-009	TH-230	1.013134	0.146658	0.191055	0.041391	0.013295	pCi	g	ARS1-B10-02129	0.6562	1			3.23	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-10	TLS-SS-IA3-D04 (0.3-0.8)03151C	ARS1-10-00580-027	ASP-A-009	TH-230	1.009936	0.14856	0.192274	0.0413	0.013026	pCi	g	ARS1-B10-02129	0.66285	1			3.20	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-22	TLS-SB-IA2-5 (2.1-3.1)032410	ARS1-10-00654-002	ASP-A-009	TH-230	1.028629	0.122377	0.174447	0.028493	0.009152	pCi	g	ARS1-B10-02129	0.98627	1			3.55	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-23	TLS-SB-IA2-5 (5.5-6.5)032410	ARS1-10-00654-003	ASP-A-009	TH-230	0.723426	0.119948	0.148432	0.043985	0.015136	pCi	g	ARS1-B10-02129	0.71715	1			2.26	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-24	TLS-SB-IA2-5 (9.5-10.5)032410	ARS1-10-00654-004	ASP-A-009	TH-230	1.325337	0.155415	0.223186	0.01939	0.003271	pCi	g	ARS1-B10-02129	0.78812	1			4.13	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-21	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	ASP-A-009	TH-230	1.178166	0.16075	0.214748	0.030652	0.007614	pCi	g	ARS1-B10-02129	0.66883	1			3.64	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02129-17	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	ASP-A-009	TH-232	1.297623	0.188209	0.244987	0.046382	0.013634	pCi	g	ARS1-B10-02129	0.56611	1						
ARS1-B10-02129-18	TLS-SB-IA1-3 (24.1-25.1)03151C	ARS1-10-00580-035	ASP-A-009	TH-232	0.566439	0.10314	0.123793	0.026157	0.006492	pCi	g	ARS1-B10-02129	0.74769	1						
ARS1-B10-02129-19	TLS-SB-IA1-3 (26.0-27.0)03151C	ARS1-10-00580-036	ASP-A-009	TH-232	0.624274	0.115412	0.137886	0.040049	0.012627	pCi	g	ARS1-B10-02129	0.69004	1						
ARS1-B10-02129-20	TLS-SB-IA1-3 (26.0-27.0)03151OD	ARS1-10-00580-037	ASP-A-009	TH-232	0.639053	0.112353	0.13634	0.03078	0.008479	pCi	g	ARS1-B10-02129	0.73052	1						
ARS1-B10-02129-06	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	ASP-A-009	TH-232	0.327341	0.076564	0.086181	0.038125	0.013005	pCi	g	ARS1-B10-02129	0.83102	1						
ARS1-B10-02129-08	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	ASP-A-009	TH-232	0.574916	0.109936	0.130054	0.041304	0.013393	pCi	g	ARS1-B10-02129	0.71447	1						
ARS1-B10-02129-09	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	ASP-A-009	TH-232	1.253305	0.161995	0.221782	0.029258	0.007265	pCi	g	ARS1-B10-02129	0.65826	1						
ARS1-B10-02129-07	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	ASP-A-009	TH-232	0.726708	0.13932	0.164694	0.018842	0	pCi	g	ARS1-B10-02129	0.53391	1						
ARS1-B10-02129-11	TLS-SB-IA3-D04 (1.4-2.4)03151C	ARS1-10-00580-028	ASP-A-009	TH-232	0.802701	0.138556	0.169144	0.033344	0.008279	pCi	g	ARS1-B10-02129	0.5797	1						
ARS1-B10-02129-14	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	ASP-A-009	TH-232	0.720427	0.172697	0.193405	0.089378	0.030744	pCi	g	ARS1-B10-02129	0.34749	1						
ARS1-B10-02129-12	TLS-SB-IA3-D04 (2.4-3.4)03151C	ARS1-10-00580-029	ASP-A-009	TH-232	1.004327	0.175882	0.213702	0.057949	0.018277	pCi	g	ARS1-B10-02129	0.50177	1						
ARS1-B10-02129-13	TLS-SB-IA3-D04 (3.4-4.4)03151C	ARS1-10-00580-030	ASP-A-009	TH-232	0.911115	0.135644	0.174715	0.028189	0.006998	pCi	g	ARS1-B10-02129	0.71374	1						
ARS1-B10-02129-04	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	ASP-A-009	TH-232	0.610231	0.09219	0.118062	0.009825	0	pCi	g	ARS1-B10-02129	1.05084	1						
ARS1-B10-02129-05	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	ASP-A-009	TH-232	0.650418	0.11714	0.141072	0.031724	0.008476	pCi	g	ARS1-B10-02129	0.6562	1						
ARS1-B10-02129-10	TLS-SS-IA3-D04 (0.3-0.8)03151C	ARS1-10-00580-027	ASP-A-009	TH-232	0.663235	0.120278	0.144541	0.036446	0.010615	pCi	g	ARS1-B10-02129	0.66285	1						
ARS1-B10-02129-22	TLS-SB-IA2-5 (2.1-3.1)032410	ARS1-10-00654-002	ASP-A-009	TH-232	0.525942	0.087348	0.108029	0.021839	0.005835	pCi	g	ARS1-B10-02129	0.98627	1						
ARS1-B10-02129-23	TLS-SB-IA2-5 (5.5-6.5)032410	ARS1-10-00654-003	ASP-A-009	TH-232	0.639695	0.112765	0.136724	0.043064	0.01469	pCi	g	ARS1-B10-02129	0.71715	1						
ARS1-B10-02129-24	TLS-SB-IA2-5 (9.5-10.5)032410	ARS1-10-00654-004	ASP-A-009	TH-232	0.749755	0.11674	0.147781	0.012823	0	pCi	g	ARS1-B10-02129	0.78812	1						
ARS1-B10-02129-21	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	ASP-A-009	TH-232	1.013439	0.148703	0.192653	0.015392	0	pCi	g	ARS1-B10-02129	0.66883	1						
ARS1-B10-02134-09	TLS-SB-IA1-15 (10.5-12.0)031110	ARS1-10-00576-027	ASP-A-009	TH-228	3.546284	0.353292	0.555444	0.106665	0.041157	pCi	g	ARS1-B10-02134	0.46869	1						
ARS1-B10-02134-10	TLS-SB-IA1-15 (14.6-15.6)031110	ARS1-10-00576-028	ASP-A-009	TH-228	1.966864	0.281231	0.368239	0.114222	0.043407	pCi	g	ARS1-B10-02134	0.37831	1						
ARS1-B10-02134-11	TLS-SB-IA1-15 (17.5-18.5)031110	ARS1-10-00576-029	ASP-A-009	TH-228	2.924328	0.323039	0.478823	0.100794	0.038058	pCi	g	ARS1-B10-02134	0.43799	1						
ARS1-B10-02134-12	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	ASP-A-009	TH-228	0.874589	0.140584	0.175889	0.070691	0.027818	pCi	g	ARS1-B10-02134	0.70707	1						
ARS1-B10-02134-06	TLS-SB-IA3-B04 (2.0-3.0)03111C	ARS1-10-00576-022	ASP-A-009	TH-228	1.467072	0.205128	0.27114	0.094047	0.037384	pCi	g	ARS1-B10-02134	0.54851	1						
ARS1-B10-02134-07	TLS-SB-IA3-B04 (6.0-7.0)03111C	ARS1-10-00576-023	ASP-A-009	TH-228	0.851124	0.144983	0.177769	0.072349	0.027922	pCi	g	ARS1-B10-02134	0.62934	1						
ARS1-B10-02134-04	TLS-SB-IA3-D12 (4.0-5.0)03111C	ARS1-10-00576-018	ASP-A-009	TH-228	2.367023	0.266895	0.391247	0.096798	0.038092	pCi	g	ARS1-B10-02134	0.51609	1						
ARS1-B10-02134-08	TLS-SS-IA1-15 (1.2-1.8)03111C	ARS1-10-00576-026	ASP-A-009	TH-228	0.834277	0.163666	0.192233	0.078266	0.028288	pCi	g	ARS1-B10-02134	0.49978	1						
ARS1-B10-02134-05	TLS-SS-IA3-B04 (0.8-1.3)03111C	ARS1-10-00576-021	ASP-A-009	TH-228	1.333899	0.258804	0.30491	0.168218	0.068141	pCi	g	ARS1-B10-02134	0.35357	1						
ARS1-B10-02134-22	TLS-SB-IA2-2 (11.2-12.2)032410	ARS1-10-00654-013	ASP-A-009	TH-228	0.983942	0.148591	0.190319	0.078025	0.031606	pCi	g	ARS1-B10-02134	0.75425	1						
ARS1-B10-02134-23	TLS-SB-IA2-2 (14.7-15.7)032410	ARS1-10-00654-014	ASP-A-009	TH-228	0.854979	0.146873	0.179581	0.080915	0.032164	pCi	g	ARS1-B10-02134	0.64044	1						
ARS1-B10-02134-24	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	ASP-A-009	TH-228	0.903714	0.143086	0.180009	0.066825	0.02579	pCi	g	ARS1-B10-02134	0.6795	1						
ARS1-B10-02134-21	TLS-SB-IA2-2 (7.0-8.0)032410	ARS1-10-00654-012	ASP-A-009	TH-228	0.818417	0.131418	0.164483	0.058933	0.022328	pCi	g	ARS1-B10-02134	0.73366	1						
ARS1-B10-02134-16	TLS-SB-IA2-4 (1.1-2.1)032410	ARS1-10-00654-007	ASP-A-009	TH-228	0.725907	0.117636	0.146749	0.059568	0.023439	pCi	g	ARS1-B10-02134	0.81395	1						
ARS1-B10-02134-18	TLS-SB-IA2-4 (12.0-13.0)032410	ARS1-10-00654-009	ASP-A-009	TH-228	0.804967	0.132286	0.164209	0.054781	0.019971	pCi	g	ARS1-B10-02134	0.72644	1						
ARS1-B10-02134-19	TLS-SB-IA2-4 (13.6-14.6)032410	ARS1-10-00654-010	ASP-A-009	TH-228	1.079035	0.169199	0.213626	0.083363	0.032824	pCi	g	ARS1-B10-02134	0.56641	1						
ARS1-B10-02134-17	TLS-SB-IA2-4 (6.4-7.4)032410	ARS1-10-00654-008	ASP-A-009	TH-228	0.617048	0.100285	0.124975	0.043721	0.016328	pCi	g	ARS1-B10-02134	0.95177	1						
ARS1-B10-02134-14	TLS-SB-IA2-5 (10.5-11.5)032410	ARS1-10-00654-005	ASP-A-009	TH-228	0.711259	0.108828	0.138684	0.055209	0.022074	pCi	g	ARS1-B10-02134	0.96758	1						
ARS1-B10-02134-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	ASP-A-009	TH-228	0.901564	0.137226	0.175226	0.054172	0.01994	pCi	g	ARS1-B10-02134	0.73243	1						
ARS1-B10-02134-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	ASP-A-009	TH-228	0.657991	0.105927	0.132456	0.054356	0.021516	pCi	g	ARS1-B10-02134	0.91457	1						
ARS1-B10-02134-09	TLS-SB-IA1-15 (10.5-12.0)031110	ARS1-10-00576-027	ASP-A-009	TH-230	3.250383	0.327588	0.511507	0.059649	0.01823	pCi	g	ARS1-B10-02134	0.46869	1			5.69	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-10	TLS-SB-IA1-15 (14.6-15.6)031110	ARS1-10-00576-028	ASP-A-009	TH-230	3.366987	0.354273	0.539543	0.077542	0.025721	pCi	g	ARS1-B10-02134	0.37831	1			5.61	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-11	TLS-SB-IA1-15 (17.5-18.5)031110	ARS1-10-00576-029	ASP-A-009	TH-230	3.02095	0.31783	0.48407	0.056249	0.016374	pCi	g	ARS1-B10-02134	0.43799	1			5.54	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-12	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	ASP-A-009	TH-230	1.153201	0.153272	0.207167	0.028478	0.007075	pCi	g	ARS1-B10-02134	0.70707	1			3.82	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-06	TLS-SB-IA3-B04 (2.0-3.0)03111C	ARS1-10-00576-022	ASP-A-009	TH-230	1.301817	0.184673	0.24261	0.043715	0.012679	pCi	g	ARS1-B10-02134	0.54851	1			3.90	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-07	TLS-SB-IA3-B04 (6.0-7.0)03111C	ARS1-10-00576-023	ASP-A-009	TH-230	1.074619	0.155276	0.202433	0.037629	0.010957	pCi	g	ARS1-B10-02134	0.62934	1			3.54	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-04	TLS-SB-IA3-D12 (4.0-5.0)03111C	ARS1-10-00576-018	ASP-A-009	TH-230	2.34964	0.255739	0.38216	0.03895	0.009677	pCi	g	ARS1-B10-02134	0.51609	1			5.24	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-08	TLS-SS-IA1-15 (1.2-1.8)03111C	ARS1-10-00576-026	ASP-A-009	TH-230	1.268524	0.19424	0.247456	0.061381	0.020363	pCi	g	ARS1-B10-02134	0.49978	1			3.71	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-05	TLS-SS-IA3-B04 (0.8-1.3)03111C	ARS1-10-00576-021	ASP-A-009	TH-230	1.768142	0.278381	0.350946	0.090401	0.029996	pCi	g	ARS1-B10-02134	0.35357	1			4.07	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-22	TLS-SB-IA2-2 (11.2-12.2)032410	ARS1-10-00654-013	ASP-A-009	TH-230	1.475463	0.17362	0.248885	0.042445	0.014084	pCi	g	ARS1-B10-02134	0.75425	1			4.48	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-23	TLS-SB-IA2-2 (14.7-15.7)032410	ARS1-10-00654-014	ASP-A-009	TH-230	24.86518	0.750791	3.097583	0.038072	0.011042	pCi	g	ARS1-B10-02134	0.64044	1			7.93	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-24	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	ASP-A-009	TH-230	1.658647	0.186271	0.273647	0.035182	0.010244	pCi	g	ARS1-B10-02134	0.6795	1			4.75	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-21	TLS-SB-IA2-2 (7.0-8.0)032410	ARS1-10-00654-012	ASP-A-009	TH-230	1.252863	0.156954	0.218089	0.03727	0.011755	pCi	g	ARS1-B10-02134	0.73366	1			4.08	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-16	TLS-SB-IA2-4 (1.1-2.1)032410	ARS1-10-00654-007	ASP-A-009	TH-230	0.967184	0.130489	0.17519	0.039231	0.0135	pCi	g	ARS1-B10-02134	0.81395	1			3.44	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-18	TLS-SB-IA2-4 (12.0-13.0)032410	ARS1-10-00654-009	ASP-A-009	TH-230	1.012905	0.144288	0.189224	0.042533	0.014115	pCi	g	ARS1-B10-02134	0.72644	1			3.45	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-19	TLS-SB-IA2-4 (13.6-14.6)032410	ARS1-10-00654-010	ASP-A-009	TH-230	1.174857	0.16933	0.220986	0.042819	0.012872	pCi	g	ARS1-B10-02134	0.56641	1			3.70	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-17	TLS-SB-IA2-4 (6.4-7.4)032410	ARS1-10-00654-008	ASP-A-009	TH-230	0.859406	0.114029	0.154244	0.016094	0.002715	pCi	g	ARS1-B10-02134	0.95177	1			3.19	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-14	TLS-SB-IA2-5 (10.5-11.5)032410	ARS1-10-00654-005	ASP-A-009	TH-230	1.1553	0.132277	0.192338	0.021186	0.005263	pCi	g	ARS1-B10-02134	0.96758	1			4.08	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	ASP-A-009	TH-230	1.175416	0.152153	0.208163	0.037314	0.011769	pCi	g	ARS1-B10-02134	0.73243	1			3.90	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	ASP-A-009	TH-230	0.99073	0.124361	0.172636	0.030522	0.009804	pCi	g	ARS1-B10-02134	0.91457	1			3.60	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02134-09	TLS-SB-IA1-15 (10.5-12.0)031110	ARS1-10-00576-027	ASP-A-009	TH-232	3.22948	0.326082	0.508603	0.056157	0.016507	pCi	g	ARS1-B10-02134	0.46869	1						
ARS1-B10-02134-10	TLS-SB-IA1-15 (14.6-15.6)031110	ARS1-10-00576-028	ASP-A-009	TH-232	1.91551	0.266385	0.352927	0.051717	0.012835	pCi	g	ARS1-B10-02134	0.37831	1						
ARS1-B10-02134-11	TLS-SB-IA1-15 (17.5-18.5)031110	ARS1-10-00576-029	ASP-A-009	TH-232	2.538239	0.291469	0.423159	0.063481	0.020014	pCi	g	ARS1-B10-02134	0.43799	1						
ARS1-B10-02134-12	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	ASP-A-009	TH-232	0.669338	0.116945	0.142199	0.031842	0.008772	pCi	g	ARS1-B10-02134	0.70707	1						
ARS1-B10-02134-06	TLS-SB-IA3-B04 (2.0-3.0)03111C	ARS1-10-00576-022	ASP-A-009	TH-232	1.127498	0.171455	0.219012	0.036388	0.009034	pCi	g	ARS1-B10-02134	0.54851	1						
ARS1-B10-02134-07	TLS-SB-IA3-B04 (6.0-7.0)03111C	ARS1-10-00576-023	ASP-A-009	TH-232	0.649111	0.121886	0.144951	0.050263	0.017289	pCi	g	ARS1-B10-02134	0.62934	1						
ARS1-B10-02134-04	TLS-SB-IA3-D12 (4.0-5.0)03111C	ARS1-10-00576-018	ASP-A-009	TH-232	2.114782	0.242553	0.352364	0.043551	0.011997	pCi	g	ARS1-B10-02134	0.51609	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02134-08	TLS-SS-IA1-15 (1.2-1.8)031110	ARS1-10-00576-026	ASP-A-009	TH-232	0.854009	0.159814	0.190247	0.061258	0.020322	pCi	g	ARS1-B10-02134	0.49978	1						
ARS1-B10-02134-05	TLS-SS-IA3-B04 (0.8-1.3)031110	ARS1-10-00576-021	ASP-A-009	TH-232	1.652668	0.268426	0.334589	0.082199	0.025925	pCi	g	ARS1-B10-02134	0.35357	1						
ARS1-B10-02134-22	TLS-SB-IA2-2 (11.2-12.2)032410	ARS1-10-00654-013	ASP-A-009	TH-232	1.003784	0.143127	0.187626	0.038593	0.012172	pCi	g	ARS1-B10-02134	0.75425	1						
ARS1-B10-02134-23	TLS-SB-IA2-2 (14.7-15.7)032410	ARS1-10-00654-014	ASP-A-009	TH-232	1.116215	0.159166	0.208647	0.031691	0.007868	pCi	g	ARS1-B10-02134	0.64044	1						
ARS1-B10-02134-24	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	ASP-A-009	TH-232	0.654228	0.118197	0.142206	0.046994	0.016165	pCi	g	ARS1-B10-02134	0.6795	1						
ARS1-B10-02134-21	TLS-SB-IA2-2 (7.0-8.0)032410	ARS1-10-00654-012	ASP-A-009	TH-232	0.752834	0.121328	0.151655	0.027279	0.006773	pCi	g	ARS1-B10-02134	0.73366	1						
ARS1-B10-02134-16	TLS-SB-IA2-4 (1.1-2.1)032410	ARS1-10-00654-007	ASP-A-009	TH-232	0.493766	0.093741	0.111124	0.03841	0.013102	pCi	g	ARS1-B10-02134	0.81395	1						
ARS1-B10-02134-18	TLS-SB-IA2-4 (12.0-13.0)032410	ARS1-10-00654-009	ASP-A-009	TH-232	1.710419	0.186695	0.278548	0.040611	0.013169	pCi	g	ARS1-B10-02134	0.72644	1						
ARS1-B10-02134-19	TLS-SB-IA2-4 (13.6-14.6)032410	ARS1-10-00654-010	ASP-A-009	TH-232	1.021777	0.157426	0.200083	0.033852	0.008405	pCi	g	ARS1-B10-02134	0.56641	1						
ARS1-B10-02134-17	TLS-SB-IA2-4 (6.4-7.4)032410	ARS1-10-00654-008	ASP-A-009	TH-232	0.600761	0.095204	0.119732	0.010643	0	pCi	g	ARS1-B10-02134	0.95177	1						
ARS1-B10-02134-14	TLS-SB-IA2-5 (10.5-11.5)032410	ARS1-10-00654-005	ASP-A-009	TH-232	0.697923	0.102593	0.132817	0.010639	0	pCi	g	ARS1-B10-02134	0.96758	1						
ARS1-B10-02134-20	TLS-SS-IA2-2 (0.5-1.0)03241	ARS1-10-00654-011	ASP-A-009	TH-232	0.691628	0.116662	0.143518	0.032929	0.00959	pCi	g	ARS1-B10-02134	0.73243	1						
ARS1-B10-02134-15	TLS-SS-IA2-4 (0.6-1.1)03241	ARS1-10-00654-006	ASP-A-009	TH-232	0.533757	0.091091	0.11162	0.023394	0.006251	pCi	g	ARS1-B10-02134	0.91457	1						
ARS1-B10-02157-04	TLS-SB-IA1-7 (5.0-6.0)030910	ARS1-10-00559-008	ASP-A-009	TH-228	3.06765	0.384134	0.533873	0.135125	0.051021	pCi	g	ARS1-B10-02157	0.29941	1						
ARS1-B10-02157-06	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	ASP-A-009	TH-228	1.966031	0.269068	0.358969	0.123468	0.049366	pCi	g	ARS1-B10-02157	0.42046	1						
ARS1-B10-02157-34	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	ASP-A-009	TH-228	0.684831	0.131819	0.15565	0.085122	0.034481	pCi	g	ARS1-B10-02157	0.6655	1						
ARS1-B10-02157-05	TLS-SS-IA1-6 (1.2-1.7)03171	ARS1-10-00600-001	ASP-A-009	TH-228	0.98583	0.155163	0.195632	0.076563	0.030129	pCi	g	ARS1-B10-02157	0.63577	1						
ARS1-B10-02157-35	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	ASP-A-009	TH-228	0.727887	0.124963	0.152823	0.068807	0.027351	pCi	g	ARS1-B10-02157	0.6472	1						
ARS1-B10-02157-36	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	ASP-A-009	TH-228	0.81991	0.145298	0.175873	0.075122	0.028992	pCi	g	ARS1-B10-02157	0.52921	1						
ARS1-B10-02157-37	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	ASP-A-009	TH-228	0.786104	0.145468	0.173746	0.065914	0.023824	pCi	g	ARS1-B10-02157	0.58307	1						
ARS1-B10-02157-38	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	ASP-A-009	TH-228	1.029653	0.180261	0.219044	0.092134	0.03555	pCi	g	ARS1-B10-02157	0.53409	1						
ARS1-B10-02157-29	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	ASP-A-009	TH-228	1.118998	0.154409	0.205263	0.057745	0.021566	pCi	g	ARS1-B10-02157	0.60301	1						
ARS1-B10-02157-30	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	ASP-A-009	TH-228	0.748419	0.117787	0.148512	0.046835	0.017074	pCi	g	ARS1-B10-02157	0.72106	1						
ARS1-B10-02157-31	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	ASP-A-009	TH-228	0.681526	0.12055	0.146003	0.066097	0.026025	pCi	g	ARS1-B10-02157	0.63155	1						
ARS1-B10-02157-32	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	ASP-A-009	TH-228	0.822061	0.131025	0.164435	0.054012	0.019881	pCi	g	ARS1-B10-02157	0.72377	1						
ARS1-B10-02157-40	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	ASP-A-009	TH-228	1.002231	0.160529	0.201102	0.07114	0.026861	pCi	g	ARS1-B10-02157	0.50071	1						
ARS1-B10-02157-41	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	ASP-A-009	TH-228	0.853455	0.164116	0.193839	0.101481	0.040575	pCi	g	ARS1-B10-02157	0.51469	1						
ARS1-B10-02157-42	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	ASP-A-009	TH-228	0.879893	0.13052	0.168359	0.062238	0.024636	pCi	g	ARS1-B10-02157	0.66484	1						
ARS1-B10-02157-43	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	ASP-A-009	TH-228	0.876267	0.151514	0.184858	0.081266	0.031977	pCi	g	ARS1-B10-02157	0.52286	1						
ARS1-B10-02157-33	TLS-SS-IA2-14 (1.2-1.7)032410	ARS1-10-00654-021	ASP-A-009	TH-228	1.02575	0.15527	0.198691	0.065928	0.024979	pCi	g	ARS1-B10-02157	0.56176	1						
ARS1-B10-02157-28	TLS-SS-IA2-15 (0.2-0.7)032410	ARS1-10-00654-016	ASP-A-009	TH-228	0.91266	0.137512	0.176286	0.065217	0.025662	pCi	g	ARS1-B10-02157	0.72353	1						
ARS1-B10-02157-39	TLS-SS-IA2-16 (0.0-0.5)032410	ARS1-10-00654-027	ASP-A-009	TH-228	0.99184	0.143978	0.187349	0.059308	0.022539	pCi	g	ARS1-B10-02157	0.63024	1						
ARS1-B10-02157-04	TLS-SB-IA1-7 (5.0-6.0)030910	ARS1-10-00559-008	ASP-A-009	TH-230	3.162368	0.376171	0.53627	0.075192	0.021889	pCi	g	ARS1-B10-02157	0.29941	1			5.64	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-06	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	ASP-A-009	TH-230	13.27511	0.66752	1.737757	0.047038	0.011685	pCi	g	ARS1-B10-02157	0.42046	1			7.57	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-34	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	ASP-A-009	TH-230	0.707326	0.12629	0.152504	0.046295	0.015361	pCi	g	ARS1-B10-02157	0.6655	1			3.62	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-05	TLS-SS-IA1-6 (1.2-1.7)03171	ARS1-10-00600-001	ASP-A-009	TH-230	1.609728	0.188907	0.271176	0.031011	0.007705	pCi	g	ARS1-B10-02157	0.63577	1			5.38	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-35	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	ASP-A-009	TH-230	1.488016	0.16969	0.247261	0.032367	0.009388	pCi	g	ARS1-B10-02157	0.6472	1			5.40	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-36	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	ASP-A-009	TH-230	0.987735	0.152677	0.193808	0.03954	0.011513	pCi	g	ARS1-B10-02157	0.52921	1			4.30	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-37	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	ASP-A-009	TH-230	0.992202	0.158697	0.198909	0.05231	0.017354	pCi	g	ARS1-B10-02157	0.58307	1			4.22	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-38	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	ASP-A-009	TH-230	1.248025	0.190309	0.242836	0.052137	0.015934	pCi	g	ARS1-B10-02157	0.53409	1			4.53	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-29	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	ASP-A-009	TH-230	1.519585	0.174225	0.25315	0.021253	0.003585	pCi	g	ARS1-B10-02157	0.60301	1			5.40	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-30	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	ASP-A-009	TH-230	1.260742	0.148514	0.212777	0.036357	0.012066	pCi	g	ARS1-B10-02157	0.72106	1			5.19	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-31	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	ASP-A-009	TH-230	1.28007	0.157195	0.220557	0.033945	0.010204	pCi	g	ARS1-B10-02157	0.63155	1			5.10	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-32	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	ASP-A-009	TH-230	1.479211	0.170267	0.246886	0.037196	0.011732	pCi	g	ARS1-B10-02157	0.72377	1			5.37	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-40	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	ASP-A-009	TH-230	1.226895	0.171423	0.226657	0.040175	0.011695	pCi	g	ARS1-B10-02157	0.50071	1			4.74	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-41	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	ASP-A-009	TH-230	0.755336	0.145249	0.171555	0.038913	0.009666	pCi	g	ARS1-B10-02157	0.51469	1			3.52	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-42	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	ASP-A-009	TH-230	0.965587	0.131423	0.175759	0.034921	0.011217	pCi	g	ARS1-B10-02157	0.66484	1			4.59	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-43	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	ASP-A-009	TH-230	0.891245	0.146783	0.182066	0.05348	0.018404	pCi	g	ARS1-B10-02157	0.52286	1			4.05	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-33	TLS-SS-IA2-14 (1.2-1.7)032410	ARS1-10-00654-021	ASP-A-009	TH-230	1.125304	0.157465	0.208069	0.041684	0.013147	pCi	g	ARS1-B10-02157	0.56176	1			4.67	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-28	TLS-SS-IA2-15 (0.2-0.7)032410	ARS1-10-00654-016	ASP-A-009	TH-230	1.485652	0.168836	0.246468	0.042945	0.014778	pCi	g	ARS1-B10-02157	0.72353	1			5.40	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-39	TLS-SS-IA2-16 (0.0-0.5)032410	ARS1-10-00654-027	ASP-A-009	TH-230	1.321747	0.161103	0.226877	0.040744	0.013515	pCi	g	ARS1-B10-02157	0.63024	1			5.14	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02157-04	TLS-SB-IA1-7 (5.0-6.0)030910	ARS1-10-00559-008	ASP-A-009	TH-232	3.045777	0.369293	0.521426	0.08486	0.026755	pCi	g	ARS1-B10-02157	0.29941	1						
ARS1-B10-02157-06	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	ASP-A-009	TH-232	1.806584	0.245949	0.328885	0.02362	0	pCi	g	ARS1-B10-02157	0.42046	1						
ARS1-B10-02157-34	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	ASP-A-009	TH-232	0.560451	0.112238	0.131094	0.042094	0.013276	pCi	g	ARS1-B10-02157	0.6655	1						
ARS1-B10-02157-05	TLS-SS-IA1-6 (1.2-1.7)03171	ARS1-10-00600-001	ASP-A-009	TH-232	0.901403	0.141511	0.17859	0.034674	0.009552	pCi	g	ARS1-B10-02157	0.63577	1						
ARS1-B10-02157-35	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	ASP-A-009	TH-232	0.575063	0.105456	0.1263	0.026942	0.006689	pCi	g	ARS1-B10-02157	0.6472	1						
ARS1-B10-02157-36	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	ASP-A-009	TH-232	0.576566	0.118062	0.137093	0.052816	0.018168	pCi	g	ARS1-B10-02157	0.52921	1						
ARS1-B10-02157-37	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	ASP-A-009	TH-232	0.682083	0.13195	0.155585	0.052205	0.017319	pCi	g	ARS1-B10-02157	0.58307	1						
ARS1-B10-02157-38	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	ASP-A-009	TH-232	0.961932	0.166966	0.203455	0.049084	0.014429	pCi	g	ARS1-B10-02157	0.53409	1						
ARS1-B10-02157-29	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	ASP-A-009	TH-232	0.9518	0.137707	0.179433	0.014055	0	pCi	g	ARS1-B10-02157	0.60301	1						
ARS1-B10-02157-30	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	ASP-A-009	TH-232	0.664507	0.108043	0.134623	0.034714	0.011256	pCi	g	ARS1-B10-02157	0.72106	1						
ARS1-B10-02157-31	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	ASP-A-009	TH-232	0.608978	0.108282	0.130928	0.026836	0.006663	pCi	g	ARS1-B10-02157	0.63155	1						
ARS1-B10-02157-32	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	ASP-A-009	TH-232	0.872831	0.130717	0.167974	0.032825	0.00956	pCi	g	ARS1-B10-02157	0.72377	1						
ARS1-B10-02157-40	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	ASP-A-009	TH-232	0.792241	0.138211	0.168138	0.045341	0.014295	pCi	g	ARS1-B10-02157	0.50071	1						
ARS1-B10-02157-41	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	ASP-A-009	TH-232	0.584051	0.127193	0.145468	0.01954	0	pCi	g	ARS1-B10-02157	0.51469	1						
ARS1-B10-02157-42	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	ASP-A-009	TH-232	0.623026	0.10526	0.129421	0.026766	0.007151	pCi	g	ARS1-B10-02157	0.66484	1						
ARS1-B10-02157-43	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	ASP-A-009	TH-232	0.662514	0.126807	0.149971	0.052361	0.017861	pCi	g	ARS1-B10-02157	0.52286	1						
ARS1-B10-02157-33	TLS-SS-IA2-14 (1.2-1.7)032410	ARS1-10-00654-021	ASP-A-009	TH-232	0.858137	0.136987	0.17182	0.03051	0.007575	pCi	g	ARS1-B10-02157	0.56176	1						
ARS1-B10-02157-28	TLS-SS-IA2-15 (0.2-0.7)032410	ARS1-10-00654-016	ASP-A-009	TH-232	0.643869	0.111747	0.136173	0.042046	0.014342	pCi	g	ARS1-B10-02157	0.72353	1						
ARS1-B10-02157-39	TLS-SS-IA2-16 (0.0-0.5)032410	ARS1-10-00654-027	ASP-A-009	TH-232	0.732714	0.119499	0.148736	0.027174	0.006744	pCi	g	ARS1-B10-02157	0.63024	1						
ARS1-B10-02169-05	TLS-SB-IA1-6 (26.8-28.0)031710	ARS1-10-00600-005	ASP-A-009	TH-228	0.593612	0.095353	0.119329	0.039594	0.014574	pCi	g	ARS1-B10-02169	0.97985	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-04	TLS-SB-IA1-6 (6.4-7.4)031710	ARS1-10-00600-004	ASP-A-009	TH-228	0.735238	0.141135	0.166779	0.083072	0.032709	pCi	g	ARS1-B10-02169	0.5747	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-15	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171	ARS1-10-00600-015	ASP-A-009	TH-228	0.575796	0.094264	0.117169	0.050763	0.020296	pCi	g	ARS1-B10-02169	1.04353	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-18	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171	ARS1-10-00600-018	ASP-A-009	TH-228	1.026765	0.150442	0.195019	0.070943	0.028081	pCi	g	ARS1-B10-02169	0.71117	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02169-19	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	ASP-A-009	TH-228	0.735153	0.117753	0.147513	0.059008	0.023219	pCi	g	ARS1-B10-02169	0.78675	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-07	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	ASP-A-009	TH-228	0.798227	0.147083	0.1759	0.091605	0.037107	pCi	g	ARS1-B10-02169	0.63728	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-08	TLS-SB-IA6-10 (15.6-16.6)03171C	ARS1-10-00600-008	ASP-A-009	TH-228	0.750563	0.127564	0.156529	0.069624	0.027676	pCi	g	ARS1-B10-02169	0.75011	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-09	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	ASP-A-009	TH-228	0.863021	0.134659	0.170331	0.062056	0.02395	pCi	g	ARS1-B10-02169	0.72878	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-11	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	ASP-A-009	TH-228	0.759358	0.129489	0.158714	0.064639	0.024941	pCi	g	ARS1-B10-02169	0.75477	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-12	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	ASP-A-009	TH-228	0.51291	0.107493	0.124087	0.06175	0.023467	pCi	g	ARS1-B10-02169	0.69647	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-13	TLS-SB-IA6-14 (17.4-18.4)03171C	ARS1-10-00600-013	ASP-A-009	TH-228	0.57726	0.112569	0.132437	0.059655	0.022525	pCi	g	ARS1-B10-02169	0.70739	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-23	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	ASP-A-009	TH-228	0.753699	0.132799	0.161039	0.060097	0.022121	pCi	g	ARS1-B10-02169	0.66482	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-21	TLS-SB-IA6-18 (8.9-9.9)03171C	ARS1-10-00600-021	ASP-A-009	TH-228	0.361514	0.073677	0.085659	0.03722	0.013569	pCi	g	ARS1-B10-02169	1.07278	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-14	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	ASP-A-009	TH-228	0.921665	0.142828	0.18113	0.069498	0.027348	pCi	g	ARS1-B10-02169	0.71537	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-06	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	ASP-A-009	TH-228	0.77055	0.132054	0.161589	0.062859	0.023816	pCi	g	ARS1-B10-02169	0.69486	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-10	TLS-SS-IA6-14 (12.0-12.5)03171C	ARS1-10-00600-010	ASP-A-009	TH-228	0.553466	0.107838	0.1269	0.051245	0.018522	pCi	g	ARS1-B10-02169	0.75495	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-20	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	ASP-A-009	TH-228	0.630105	0.119528	0.141727	0.060043	0.022424	pCi	g	ARS1-B10-02169	0.67075	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-25	TLS-SB-IA6-19 (4.0-5.0)03181C	ARS1-10-00609-002	ASP-A-009	TH-228	0.611612	0.136808	0.155501	0.099655	0.040368	pCi	g	ARS1-B10-02169	0.58928	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-24	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	ASP-A-009	TH-228	0.802457	0.128047	0.160631	0.057089	0.02163	pCi	g	ARS1-B10-02169	0.76517	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-05	TLS-SB-IA1-6 (26.8-28.0)03171C	ARS1-10-00600-005	ASP-A-009	TH-230	0.933808	0.115386	0.161404	0.027032	0.008526	pCi	g	ARS1-B10-02169	0.97985	1		R	1.83	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-04	TLS-SB-IA1-6 (6.4-7.4)03171C	ARS1-10-00600-004	ASP-A-009	TH-230	1.327307	0.178781	0.240202	0.042294	0.012714	pCi	g	ARS1-B10-02169	0.5747	1		R	0.41	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-15	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	ASP-A-009	TH-230	0.956248	0.114891	0.162963	0.019305	0.004796	pCi	g	ARS1-B10-02169	1.04353	1		R	1.74	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-18	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	ASP-A-009	TH-230	1.45708	0.171432	0.245767	0.039479	0.012681	pCi	g	ARS1-B10-02169	0.71117	1		R	0.03	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-19	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	ASP-A-009	TH-230	1.004787	0.131726	0.179162	0.038514	0.013254	pCi	g	ARS1-B10-02169	0.78675	1		R	1.53	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-07	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	ASP-A-009	TH-230	1.348139	0.179257	0.242242	0.049392	0.016389	pCi	g	ARS1-B10-02169	0.63728	1		R	0.35	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-08	TLS-SB-IA6-10 (15.6-16.6)03171C	ARS1-10-00600-008	ASP-A-009	TH-230	1.33262	0.160882	0.227649	0.03247	0.009418	pCi	g	ARS1-B10-02169	0.75011	1		R	0.41	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-09	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	ASP-A-009	TH-230	1.85478	0.188906	0.293151	0.032383	0.009429	pCi	g	ARS1-B10-02169	0.72878	1		J	1.01	Y	n	LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-11	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	ASP-A-009	TH-230	1.288776	0.161019	0.224029	0.036261	0.011082	pCi	g	ARS1-B10-02169	0.75477	1		R	0.54	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-12	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	ASP-A-009	TH-230	0.628185	0.113492	0.136545	0.042052	0.013949	pCi	g	ARS1-B10-02169	0.69647	1		R	3.00	n	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-13	TLS-SB-IA6-14 (17.4-18.4)03171C	ARS1-10-00600-013	ASP-A-009	TH-230	1.192834	0.154033	0.210974	0.033396	0.009722	pCi	g	ARS1-B10-02169	0.70739	1		R	0.85	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-23	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	ASP-A-009	TH-230	1.23909	0.163831	0.221963	0.041023	0.012939	pCi	g	ARS1-B10-02169	0.66482	1		R	0.70	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-21	TLS-SB-IA6-18 (8.9-9.9)03171C	ARS1-10-00600-021	ASP-A-009	TH-230	0.542261	0.086782	0.108749	0.028639	0.009504	pCi	g	ARS1-B10-02169	1.07278	1		R	3.46	n	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-14	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	ASP-A-009	TH-230	1.623401	0.180563	0.266644	0.0281	0.006981	pCi	g	ARS1-B10-02169	0.71537	1		J	0.43	Y	n	LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-06	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	ASP-A-009	TH-230	1.251245	0.161314	0.221115	0.039402	0.012428	pCi	g	ARS1-B10-02169	0.69486	1		R	0.66	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-10	TLS-SS-IA6-14 (12.0-12.5)03171C	ARS1-10-00600-010	ASP-A-009	TH-230	1.242731	0.155412	0.21613	0.040317	0.013375	pCi	g	ARS1-B10-02169	0.75495	1		R	0.69	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-20	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	ASP-A-009	TH-230	1.04234	0.146513	0.193226	0.021905	0.003695	pCi	g	ARS1-B10-02169	0.67075	1		R	1.37	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-25	TLS-SB-IA6-19 (4.0-5.0)03181C	ARS1-10-00609-002	ASP-A-009	TH-230	1.242104	0.179709	0.234162	0.053764	0.01784	pCi	g	ARS1-B10-02169	0.58928	1		R	0.67	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-24	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	ASP-A-009	TH-230	1.122951	0.145689	0.199111	0.035807	0.011293	pCi	g	ARS1-B10-02169	0.76517	1		R	1.10	Y	Y	MB>Primary Finding / LCS: Normalized Absolute Difference > 3.0 -Recove
ARS1-B10-02169-05	TLS-SB-IA1-6 (26.8-28.0)03171C	ARS1-10-00600-005	ASP-A-009	TH-232	0.498526	0.084304	0.103622	0.023855	0.006947	pCi	g	ARS1-B10-02169	0.97985	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-04	TLS-SB-IA1-6 (6.4-7.4)03171C	ARS1-10-00600-004	ASP-A-009	TH-232	0.750371	0.134171	0.161946	0.033436	0.008302	pCi	g	ARS1-B10-02169	0.5747	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-15	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	ASP-A-009	TH-232	0.614328	0.091882	0.118131	0.009694	0	pCi	g	ARS1-B10-02169	1.04353	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-18	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	ASP-A-009	TH-232	0.814455	0.127906	0.161398	0.030259	0.008085	pCi	g	ARS1-B10-02169	0.71117	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-19	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	ASP-A-009	TH-232	0.517505	0.095003	0.113744	0.037708	0.012863	pCi	g	ARS1-B10-02169	0.78675	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-07	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	ASP-A-009	TH-232	0.746101	0.133499	0.161101	0.044911	0.014165	pCi	g	ARS1-B10-02169	0.63728	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-08	TLS-SB-IA6-10 (15.6-16.6)03171C	ARS1-10-00600-008	ASP-A-009	TH-232	0.662407	0.11332	0.138748	0.027028	0.00671	pCi	g	ARS1-B10-02169	0.75011	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-09	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	ASP-A-009	TH-232	0.687862	0.116084	0.142783	0.043255	0.014879	pCi	g	ARS1-B10-02169	0.72878	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-11	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	ASP-A-009	TH-232	0.640401	0.11364	0.137495	0.034138	0.010035	pCi	g	ARS1-B10-02169	0.75477	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-12	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	ASP-A-009	TH-232	0.582232	0.108294	0.129148	0.028047	0.006961	pCi	g	ARS1-B10-02169	0.69647	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-13	TLS-SB-IA6-14 (17.4-18.4)03171C	ARS1-10-00600-013	ASP-A-009	TH-232	0.517794	0.102083	0.119739	0.03769	0.011883	pCi	g	ARS1-B10-02169	0.70739	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-23	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	ASP-A-009	TH-232	0.610063	0.115019	0.136623	0.036202	0.010543	pCi	g	ARS1-B10-02169	0.66482	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-21	TLS-SB-IA6-18 (8.9-9.9)03171C	ARS1-10-00600-021	ASP-A-009	TH-232	0.369219	0.071708	0.084459	0.027345	0.008867	pCi	g	ARS1-B10-02169	1.07278	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-14	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	ASP-A-009	TH-232	0.95453	0.138554	0.180295	0.03142	0.008655	pCi	g	ARS1-B10-02169	0.71537	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-06	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	ASP-A-009	TH-232	0.721435	0.122149	0.150077	0.02884	0.007161	pCi	g	ARS1-B10-02169	0.69486	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-10	TLS-SS-IA6-14 (12.0-12.5)03171C	ARS1-10-00600-010	ASP-A-009	TH-232	0.528898	0.101999	0.120374	0.040236	0.013348	pCi	g	ARS1-B10-02169	0.75495	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-20	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	ASP-A-009	TH-232	0.488917	0.100198	0.116324	0.014486	0	pCi	g	ARS1-B10-02169	0.67075	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-25	TLS-SB-IA6-19 (4.0-5.0)03181C	ARS1-10-00609-002	ASP-A-009	TH-232	0.645433	0.129812	0.151448	0.048886	0.015419	pCi	g	ARS1-B10-02169	0.58928	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02169-24	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	ASP-A-009	TH-232	0.767398	0.120052	0.151706	0.026208	0.006507	pCi	g	ARS1-B10-02169	0.76517	1		J				LCS: Normalized Absolute Difference > 3.0 -Recovery < Lab LCL / LCSD NA
ARS1-B10-02184-16	TLS-SB-IA1-DOE-B3 (7.1-8.1)03181C	ARS1-10-00609-015	ASP-A-009	TH-228	1.919733	0.215499	0.316659	0.062012	0.022607	pCi	g	ARS1-B10-02184	0.63552	1						
ARS1-B10-02184-17	TLS-SB-IA1-DOE-B3 (8.2-9.2)03181C	ARS1-10-00609-016	ASP-A-009	TH-228	0.688353	0.117338	0.143838	0.062277	0.024521	pCi	g	ARS1-B10-02184	0.71405	1						
ARS1-B10-02184-10	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	ASP-A-009	TH-228	1.656448	0.218233	0.296151	0.096726	0.038674	pCi	g	ARS1-B10-02184	0.55286	1						
ARS1-B10-02184-11	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	ASP-A-009	TH-228	0.672048	0.109488	0.136326	0.056782	0.022476	pCi	g	ARS1-B10-02184	0.66091	1						
ARS1-B10-02184-09	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	ASP-A-009	TH-228	3.0695	0.394502	0.541534	0.161739	0.063647	pCi	g	ARS1-B10-02184	0.30856	1						
ARS1-B10-02184-13	TLS-SB-IA1-DOE-B3 (2.5-3.5)03181C	ARS1-10-00609-012	ASP-A-009	TH-228	0.878852	0.127047	0.1656	0.049645	0.01854	pCi	g	ARS1-B10-02184	0.7901	1						
ARS1-B10-02184-04	TLS-SB-IA6-19 (7.2-8.2)03181C	ARS1-10-00609-003	ASP-A-009	TH-228	0.448111	0.1081	0.120909	0.072848	0.028109	pCi	g	ARS1-B10-02184	0.61909	1						
ARS1-B10-02184-05	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	ASP-A-009	TH-228	0.547816	0.11258	0.130606	0.063572	0.024159	pCi	g	ARS1-B10-02184	0.66518	1						
ARS1-B10-02184-19	TLS-SB-IA6-20 (4.0-5.0)03181C	ARS1-10-00609-018	ASP-A-009	TH-228	0.674947	0.134146	0.157002	0.072959	0.027643	pCi	g	ARS1-B10-02184	0.49271	1						
ARS1-B10-02184-20	TLS-SB-IA6-20 (6.6-7.6)03181C	ARS1-10-00609-019	ASP-A-009	TH-228	0.733125	0.135855	0.162196	0.085012	0.034436	pCi	g	ARS1-B10-02184	0.66523	1						
ARS1-B10-02184-21	TLS-SB-IA6-20 (9.0-10.0)03181C	ARS1-10-00609-020	ASP-A-009	TH-228	0.672855	0.123915	0.148217	0.072502	0.02882	pCi	g	ARS1-B10-02184	0.69502	1						
ARS1-B10-02184-27	TLS-SB-IA6-6 (8.0-9.0)03181C	ARS1-10-00609-026	ASP-A-009	TH-228	0.656263	0.109099	0.134884	0.05653	0.022245	pCi	g	ARS1-B10-02184	0.84925	1						
ARS1-B10-02184-25	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	ASP-A-009	TH-228	0.424118	0.096762	0.109501	0.059818	0.022732	pCi	g	ARS1-B10-02184	0.70058	1						
ARS1-B10-02184-23	TLS-SB-IA6-9 (4.0-5.0)03181C	ARS1-10-00609-022	ASP-A-009	TH-228	0.570626	0.114314	0.133507	0.055726	0.020141	pCi	g	ARS1-B10-02184	0.63438	1						
ARS1-B10-02184-24	TLS-SB-IA6-9 (7.4-8.4)03181C	ARS1-10-00609-023	ASP-A-009	TH-228	0.87278	0.144652	0.179028	0.070376	0.027155	pCi	g	ARS1-B10-02184	0.64474	1						
ARS1-B10-02184-06	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	ASP-A-009	TH-228	1.223859	0.160905	0.218562	0.059279	0.022383	pCi	g	ARS1-B10-02184	0.71031	1						
ARS1-B10-02184-12	TLS-SS-IA1-DOE-B3 (1.0-1.5)03181C	ARS1-10-00609-011	ASP-A-009	TH-228	1.238871	0.175762	0.230893	0.078913	0.031051	pCi	g	ARS1-B10-02184	0.52438	1						
ARS1-B10-02184-18	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	ASP-A-009	TH-228	0.520706	0.111933	0.128411	0.060695	0.022341	pCi	g	ARS1-B10-02184	0.64695	1						
ARS1-B10-02184-26	TLS-SS-IA6-6 (4.5-5.0)03181C	ARS1-10-00609-025	ASP-A-009	TH-228	0.656774	0.112307	0.137527	0.052853	0.019956	pCi	g	ARS1-B10-02184	0.75186	1						
ARS1-B10-02184-22	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	ASP-A-009	TH-228	0.688031	0.125843	0.150836	0.06692	0.025827	pCi	g	ARS1-B10-02184	0.64254	1						
ARS1-B10-02184-16	TLS-SB-IA1-DOE-B3 (7.1-8.1)03181C	ARS1-10-00609-015	ASP-A-009	TH-230	5.842372	0.365102	0.794917	0.047736	0.015842	pCi	g	ARS1-B10-02184	0.63552	1			6.20	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02184-17	TLS-SB-IA1-DOE-B3 (8.2-9.2)03181C	ARS1-10-00609-016	ASP-A-009	TH-230	1.089532	0.140222	0.19236	0.031715	0.009534	pCi	g	ARS1-B10-02184	0.71405	1		J	1.09	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-10	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	ASP-A-009	TH-230	2.31601	0.246808	0.373184	0.036802	0.009142	pCi	g	ARS1-B10-02184	0.55286	1			3.69	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02184-11	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	ASP-A-009	TH-230	0.950233	0.123994	0.169009	0.031613	0.010154	pCi	g	ARS1-B10-02184	0.66091	1		J	0.58	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-09	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	ASP-A-009	TH-230	4.905163	0.478808	0.762048	0.065427	0.016255	pCi	g	ARS1-B10-02184	0.30856	1			5.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02184-13	TLS-SB-IA1-DOE-B3 (2.5-3.5)03181C	ARS1-10-00609-012	ASP-A-009	TH-230	3.950449	0.25932	0.543331	0.018119	0.003056	pCi	g	ARS1-B10-02184	0.7901	1			5.53	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02184-04	TLS-SB-IA6-19 (7.2-8.2)03181C	ARS1-10-00609-003	ASP-A-009	TH-230	0.878317	0.141473	0.176871	0.040893	0.012498	pCi	g	ARS1-B10-02184	0.61909	1		J	0.27	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-05	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	ASP-A-009	TH-230	1.011576	0.145611	0.190131	0.043322	0.01437	pCi	g	ARS1-B10-02184	0.66518	1		J	0.79	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-19	TLS-SB-IA6-20 (4.0-5.0)03181C	ARS1-10-00609-018	ASP-A-009	TH-230	1.124675	0.164995	0.213775	0.045747	0.014429	pCi	g	ARS1-B10-02184	0.49271	1		J	1.16	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-20	TLS-SB-IA6-20 (6.6-7.6)03181C	ARS1-10-00609-019	ASP-A-009	TH-230	1.272088	0.167753	0.227549	0.045851	0.015214	pCi	g	ARS1-B10-02184	0.66523	1		J	1.64	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-21	TLS-SB-IA6-20 (9.0-10.0)03181C	ARS1-10-00609-020	ASP-A-009	TH-230	1.337909	0.164539	0.230695	0.033823	0.00981	pCi	g	ARS1-B10-02184	0.69502	1		J	1.86	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-27	TLS-SB-IA6-6 (8.0-9.0)03181C	ARS1-10-00609-026	ASP-A-009	TH-230	0.821506	0.115936	0.15264	0.022863	0.00568	pCi	g	ARS1-B10-02184	0.84925	1		J	0.03	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-25	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	ASP-A-009	TH-230	0.944336	0.136452	0.177892	0.040748	0.013517	pCi	g	ARS1-B10-02184	0.70058	1		J	0.54	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-23	TLS-SB-IA6-9 (4.0-5.0)03181C	ARS1-10-00609-022	ASP-A-009	TH-230	1.534012	0.179971	0.258386	0.043854	0.014549	pCi	g	ARS1-B10-02184	0.63438	1			2.36	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02184-24	TLS-SB-IA6-9 (7.4-8.4)03181C	ARS1-10-00609-023	ASP-A-009	TH-230	1.222958	0.163772	0.220609	0.039491	0.01207	pCi	g	ARS1-B10-02184	0.64474	1		J	1.49	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-06	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	ASP-A-009	TH-230	2.207001	0.208655	0.338654	0.033207	0.009667	pCi	g	ARS1-B10-02184	0.71031	1			3.71	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02184-12	TLS-SS-IA1-DOE-B3 (1.0-1.5)03181C	ARS1-10-00609-011	ASP-A-009	TH-230	2.533799	0.241135	0.389778	0.051528	0.017732	pCi	g	ARS1-B10-02184	0.52438	1			4.07	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02184-18	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	ASP-A-009	TH-230	1.270845	0.166768	0.226722	0.041451	0.013074	pCi	g	ARS1-B10-02184	0.64695	1		J	1.64	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-26	TLS-SS-IA6-6 (4.5-5.0)03181C	ARS1-10-00609-025	ASP-A-009	TH-230	1.274974	0.149859	0.214948	0.029602	0.008618	pCi	g	ARS1-B10-02184	0.75186	1		J	1.71	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-22	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	ASP-A-009	TH-230	1.33566	0.166634	0.232004	0.034928	0.01017	pCi	g	ARS1-B10-02184	0.64254	1		J	1.84	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02184-16	TLS-SB-IA1-DOE-B3 (7.1-8.1)03181C	ARS1-10-00609-015	ASP-A-009	TH-232	3.257843	0.272569	0.478883	0.045579	0.01478	pCi	g	ARS1-B10-02184	0.63552	1						
ARS1-B10-02184-17	TLS-SB-IA1-DOE-B3 (8.2-9.2)03181C	ARS1-10-00609-016	ASP-A-009	TH-232	0.689767	0.111339	0.139091	0.025073	0.006226	pCi	g	ARS1-B10-02184	0.71405	1						
ARS1-B10-02184-10	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	ASP-A-009	TH-232	1.534341	0.20049	0.273102	0.018481	0	pCi	g	ARS1-B10-02184	0.55286	1						
ARS1-B10-02184-11	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	ASP-A-009	TH-232	0.532742	0.092628	0.112808	0.02423	0.006474	pCi	g	ARS1-B10-02184	0.66091	1						
ARS1-B10-02184-09	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	ASP-A-009	TH-232	2.732669	0.357536	0.486735	0.073156	0.020153	pCi	g	ARS1-B10-02184	0.30856	1						
ARS1-B10-02184-13	TLS-SB-IA1-DOE-B3 (2.5-3.5)03181C	ARS1-10-00609-012	ASP-A-009	TH-232	0.848398	0.120043	0.157874	0.011982	0	pCi	g	ARS1-B10-02184	0.7901	1						
ARS1-B10-02184-04	TLS-SB-IA6-19 (7.2-8.2)03181C	ARS1-10-00609-003	ASP-A-009	TH-232	0.41438	0.097474	0.109587	0.038499	0.011317	pCi	g	ARS1-B10-02184	0.61909	1						
ARS1-B10-02184-05	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	ASP-A-009	TH-232	0.613079	0.112783	0.134946	0.028894	0.007171	pCi	g	ARS1-B10-02184	0.66518	1						
ARS1-B10-02184-19	TLS-SB-IA6-20 (4.0-5.0)03181C	ARS1-10-00609-018	ASP-A-009	TH-232	0.66042	0.126011	0.149163	0.033484	0.008314	pCi	g	ARS1-B10-02184	0.49271	1						
ARS1-B10-02184-20	TLS-SB-IA6-20 (6.6-7.6)03181C	ARS1-10-00609-019	ASP-A-009	TH-232	0.886565	0.139965	0.176271	0.041691	0.013149	pCi	g	ARS1-B10-02184	0.66523	1						
ARS1-B10-02184-21	TLS-SB-IA6-20 (9.0-10.0)03181C	ARS1-10-00609-020	ASP-A-009	TH-232	0.657769	0.115265	0.140021	0.028154	0.00699	pCi	g	ARS1-B10-02184	0.69502	1						
ARS1-B10-02184-27	TLS-SB-IA6-6 (8.0-9.0)03181C	ARS1-10-00609-026	ASP-A-009	TH-232	0.652482	0.103384	0.130027	0.025564	0.007042	pCi	g	ARS1-B10-02184	0.84925	1						
ARS1-B10-02184-25	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	ASP-A-009	TH-232	0.506011	0.099412	0.116718	0.027177	0.006745	pCi	g	ARS1-B10-02184	0.70058	1						
ARS1-B10-02184-23	TLS-SB-IA6-9 (4.0-5.0)03181C	ARS1-10-00609-022	ASP-A-009	TH-232	0.686896	0.120993	0.146736	0.043766	0.01452	pCi	g	ARS1-B10-02184	0.63438	1						
ARS1-B10-02184-24	TLS-SB-IA6-9 (7.4-8.4)03181C	ARS1-10-00609-023	ASP-A-009	TH-232	0.992129	0.147368	0.189989	0.037179	0.010929	pCi	g	ARS1-B10-02184	0.64474	1						
ARS1-B10-02184-06	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	ASP-A-009	TH-232	1.095826	0.14733	0.198109	0.037477	0.011816	pCi	g	ARS1-B10-02184	0.71031	1						
ARS1-B10-02184-12	TLS-SS-IA1-DOE-B3 (1.0-1.5)03181C	ARS1-10-00609-011	ASP-A-009	TH-232	0.778936	0.134621	0.164273	0.05045	0.017209	pCi	g	ARS1-B10-02184	0.52438	1						
ARS1-B10-02184-18	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	ASP-A-009	TH-232	0.510438	0.105887	0.122548	0.036579	0.010653	pCi	g	ARS1-B10-02184	0.64695	1						
ARS1-B10-02184-26	TLS-SS-IA6-6 (4.5-5.0)03181C	ARS1-10-00609-025	ASP-A-009	TH-232	0.475249	0.092047	0.108499	0.033409	0.010533	pCi	g	ARS1-B10-02184	0.75186	1						
ARS1-B10-02184-22	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	ASP-A-009	TH-232	0.568994	0.110038	0.129759	0.046656	0.016049	pCi	g	ARS1-B10-02184	0.64254	1						
ARS1-B10-02185-16	TLS-SB-IA6-21 (2.5-3.5)03181C	ARS1-10-00609-035	ASP-A-009	TH-228	0.526153	0.105073	0.122818	0.056874	0.021475	pCi	g	ARS1-B10-02185	0.76747	1						
ARS1-B10-02185-17	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	ASP-A-009	TH-228	0.577476	0.11552	0.134967	0.07031	0.027668	pCi	g	ARS1-B10-02185	0.64807	1						
ARS1-B10-02185-18	TLS-SB-IA6-21 (9.0-10.0)03181C	ARS1-10-00609-037	ASP-A-009	TH-228	0.720807	0.11822	0.146851	0.063765	0.025495	pCi	g	ARS1-B10-02185	0.82781	1						
ARS1-B10-02185-14	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	ASP-A-009	TH-228	0.701164	0.111649	0.140167	0.052381	0.020212	pCi	g	ARS1-B10-02185	0.79012	1						
ARS1-B10-02185-12	TLS-SB-IA6-22 (3.0-4.0)03181C	ARS1-10-00609-031	ASP-A-009	TH-228	0.921925	0.146854	0.184341	0.068964	0.026616	pCi	g	ARS1-B10-02185	0.59022	1						
ARS1-B10-02185-13	TLS-SB-IA6-22 (8.7-9.7)03181C	ARS1-10-00609-032	ASP-A-009	TH-228	0.585522	0.110059	0.130847	0.050597	0.018288	pCi	g	ARS1-B10-02185	0.76723	1						
ARS1-B10-02185-20	TLS-SB-IA6-5 (16.0-17.0)03181C	ARS1-10-00609-039	ASP-A-009	TH-228	0.809149	0.143319	0.173505	0.078515	0.030894	pCi	g	ARS1-B10-02185	0.61464	1						
ARS1-B10-02185-21	TLS-SB-IA6-5 (18.0-19.0)03181C	ARS1-10-00609-040	ASP-A-009	TH-228	0.593609	0.098565	0.121911	0.051018	0.020076	pCi	g	ARS1-B10-02185	0.97723	1						
ARS1-B10-02185-22	TLS-SB-IA6-5 (23.0-24.0)03181C	ARS1-10-00609-041	ASP-A-009	TH-228	0.936202	0.147749	0.186098	0.077038	0.030802	pCi	g	ARS1-B10-02185	0.64345	1						
ARS1-B10-02185-23	TLS-SB-IA6-5 (23.0-24.0)03181CD	ARS1-10-00609-042	ASP-A-009	TH-228	1.044454	0.157453	0.201808	0.076184	0.030156	pCi	g	ARS1-B10-02185	0.64001	1						
ARS1-B10-02185-08	TLS-SB-IA6-6 (14.0-15.0)03181C	ARS1-10-00609-027	ASP-A-009	TH-228	0.422255	0.093322	0.106365	0.051869	0.019092	pCi	g	ARS1-B10-02185	0.75214	1						
ARS1-B10-02185-09	TLS-SB-IA6-6 (18.0-19.0)03181C	ARS1-10-00609-028	ASP-A-009	TH-228	0.74782	0.125793	0.154896	0.058868	0.022304	pCi	g	ARS1-B10-02185	0.72913	1						
ARS1-B10-02185-10	TLS-SB-IA6-6 (18.0-19.0)03181CD	ARS1-10-00609-029	ASP-A-009	TH-228	0.83304	0.139035	0.171661	0.079635	0.032258	pCi	g	ARS1-B10-02185	0.7431	1						
ARS1-B10-02185-15	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	ASP-A-009	TH-228	0.790504	0.126389	0.158437	0.056938	0.021638	pCi	g	ARS1-B10-02185	0.69714	1						
ARS1-B10-02185-11	TLS-SS-IA6-22 (1.5-2.0)03181C	ARS1-10-00609-030	ASP-A-009	TH-228	0.749779	0.128958	0.157613	0.071121	0.028271	pCi	g	ARS1-B10-02185	0.7111	1						
ARS1-B10-02185-19	TLS-SS-IA6-5 (12.3-12.8)03181C	ARS1-10-00609-038	ASP-A-009	TH-228	0.753147	0.114837	0.146537	0.056136	0.02222	pCi	g	ARS1-B10-02185	0.74405	1						
ARS1-B10-02185-16	TLS-SB-IA6-21 (2.5-3.5)03181C	ARS1-10-00609-035	ASP-A-009	TH-230	1.181459	0.149809	0.206959	0.0319	0.009286	pCi	g	ARS1-B10-02185	0.76747	1			3.65	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-17	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	ASP-A-009	TH-230	1.251084	0.159637	0.219881	0.028482	0.007076	pCi	g	ARS1-B10-02185	0.64807	1			3.75	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-18	TLS-SB-IA6-21 (9.0-10.0)03181C	ARS1-10-00609-037	ASP-A-009	TH-230	0.972672	0.130028	0.175292	0.024295	0.006035	pCi	g	ARS1-B10-02185	0.82781	1			3.11	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-14	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	ASP-A-009	TH-230	1.131181	0.135897	0.192767	0.029442	0.008998	pCi	g	ARS1-B10-02185	0.79012	1			3.63	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-12	TLS-SB-IA6-22 (3.0-4.0)03181C	ARS1-10-00609-031	ASP-A-009	TH-230	1.111423	0.154534	0.204755	0.036055	0.010498	pCi	g	ARS1-B10-02185	0.59022	1			3.36	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-13	TLS-SB-IA6-22 (8.7-9.7)03181C	ARS1-10-00609-032	ASP-A-009	TH-230	1.242887	0.154577	0.215543	0.039884	0.013232	pCi	g	ARS1-B10-02185	0.76723	1			3.78	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-20	TLS-SB-IA6-5 (16.0-17.0)03181C	ARS1-10-00609-039	ASP-A-009	TH-230	1.419396	0.180696	0.249159	0.051345	0.017669	pCi	g	ARS1-B10-02185	0.61464	1			4.00	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-21	TLS-SB-IA6-5 (18.0-19.0)03181C	ARS1-10-00609-040	ASP-A-009	TH-230	0.996738	0.121331	0.170978	0.020656	0.005132	pCi	g	ARS1-B10-02185	0.97723	1			3.30	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-22	TLS-SB-IA6-5 (23.0-24.0)03181C	ARS1-10-00609-041	ASP-A-009	TH-230	0.986376	0.143932	0.186892	0.029338	0.007288	pCi	g	ARS1-B10-02185	0.64345	1			3.02	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-23	TLS-SB-IA6-5 (23.0-24.0)03181CD	ARS1-10-00609-042	ASP-A-009	TH-230	0.823051	0.134078	0.166949	0.042454	0.013636	pCi	g	ARS1-B10-02185	0.64001	1			2.44	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-08	TLS-SB-IA6-6 (14.0-15.0)03181C	ARS1-10-00609-027	ASP-A-009	TH-230	0.799219	0.122545	0.156037	0.035478	0.01119	pCi	g	ARS1-B10-02185	0.75214	1			2.44	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-09	TLS-SB-IA6-6 (18.0-19.0)03181C	ARS1-10-00609-028	ASP-A-009	TH-230	1.189238	0.152325	0.209432	0.036969	0.01166	pCi	g	ARS1-B10-02185	0.72913	1			3.64	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-10	TLS-SB-IA6-6 (18.0-19.0)03181CD	ARS1-10-00609-029	ASP-A-009	TH-230	1.139891	0.153854	0.206521	0.043017	0.014274	pCi	g	ARS1-B10-02185	0.7431	1			3.47	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-15	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	ASP-A-009	TH-230	0.932146	0.13234	0.173799	0.038849	0.012887	pCi	g	ARS1-B10-02185	0.69714	1			2.93	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-11	TLS-SS-IA6-22 (1.5-2.0)03181C	ARS1-10-00609-030	ASP-A-009	TH-230	0.830327	0.128672	0.163179	0.033231	0.009638	pCi	g	ARS1-B10-02185	0.7111	1			2.52	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-19	TLS-SS-IA6-5 (12.3-12.8)03181C	ARS1-10-00609-038	ASP-A-009	TH-230	0.770441	0.11121	0.145046	0.031299	0.010053	pCi	g	ARS1-B10-02185	0.74405	1			2.41	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02185-16	TLS-SB-IA6-21 (2.5-3.5)03181C	ARS1-10-00609-035	ASP-A-009	TH-232	0.568774	0.104435	0.125029	0.036002	0.011351	pCi	g	ARS1-B10-02185	0.76747	1						
ARS1-B10-02185-17	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	ASP-A-009	TH-232	0.640713	0.114446	0.138182	0.031847	0.008773	pCi	g	ARS1-B10-02185	0.64807	1						
ARS1-B10-02185-18	TLS-SB-IA6-21 (9.0-10.0)03181C	ARS1-10-00609-037	ASP-A-009	TH-232	0.758148	0.114507	0.146656	0.0122	0	pCi	g	ARS1-B10-02185	0.82781	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02185-14	TLS-SB-IA6-22 (18.3-19.3)031810	ARS1-10-00609-033	ASP-A-009	TH-232	0.613129	0.100111	0.124553	0.027718	0.008148	pCi	g	ARS1-B10-02185	0.79012	1						
ARS1-B10-02185-12	TLS-SB-IA6-22 (3.0-4.0)031810	ARS1-10-00609-031	ASP-A-009	TH-232	0.656947	0.119936	0.143836	0.04816	0.016566	pCi	g	ARS1-B10-02185	0.59022	1						
ARS1-B10-02185-13	TLS-SB-IA6-22 (8.7-9.7)031810	ARS1-10-00609-032	ASP-A-009	TH-232	0.619512	0.10959	0.132726	0.039804	0.013205	pCi	g	ARS1-B10-02185	0.76723	1						
ARS1-B10-02185-20	TLS-SB-IA6-5 (16.0-17.0)031810	ARS1-10-00609-039	ASP-A-009	TH-232	0.496917	0.10803	0.123602	0.050271	0.017148	pCi	g	ARS1-B10-02185	0.61464	1						
ARS1-B10-02185-21	TLS-SB-IA6-5 (18.0-19.0)031810	ARS1-10-00609-040	ASP-A-009	TH-232	0.4954	0.08568	0.104527	0.023097	0.006363	pCi	g	ARS1-B10-02185	0.97723	1						
ARS1-B10-02185-22	TLS-SB-IA6-5 (23.0-24.0)031810	ARS1-10-00609-041	ASP-A-009	TH-232	1.276762	0.163292	0.224669	0.014733	0	pCi	g	ARS1-B10-02185	0.64345	1						
ARS1-B10-02185-23	TLS-SB-IA6-5 (23.0-24.0)031810D	ARS1-10-00609-042	ASP-A-009	TH-232	0.555841	0.109753	0.128681	0.032539	0.008694	pCi	g	ARS1-B10-02185	0.64001	1						
ARS1-B10-02185-08	TLS-SB-IA6-6 (14.0-15.0)031810	ARS1-10-00609-027	ASP-A-009	TH-232	0.32496	0.078356	0.087648	0.031308	0.009118	pCi	g	ARS1-B10-02185	0.75214	1						
ARS1-B10-02185-09	TLS-SB-IA6-6 (18.0-19.0)031810	ARS1-10-00609-028	ASP-A-009	TH-232	0.73208	0.119165	0.148421	0.027059	0.006718	pCi	g	ARS1-B10-02185	0.72913	1						
ARS1-B10-02185-10	TLS-SB-IA6-6 (18.0-19.0)031810D	ARS1-10-00609-029	ASP-A-009	TH-232	0.876989	0.134793	0.171475	0.039114	0.012337	pCi	g	ARS1-B10-02185	0.7431	1						
ARS1-B10-02185-15	TLS-SS-IA6-21 (1.7-2.2)031810	ARS1-10-00609-034	ASP-A-009	TH-232	0.593121	0.105027	0.127159	0.025911	0.00643	pCi	g	ARS1-B10-02185	0.69714	1						
ARS1-B10-02185-11	TLS-SS-IA6-22 (1.5-2.0)031810	ARS1-10-00609-030	ASP-A-009	TH-232	0.673478	0.115596	0.141378	0.027661	0.006867	pCi	g	ARS1-B10-02185	0.7111	1						
ARS1-B10-02185-19	TLS-SS-IA6-5 (12.3-12.8)031810	ARS1-10-00609-038	ASP-A-009	TH-232	0.4982	0.089147	0.107577	0.02399	0.00641	pCi	g	ARS1-B10-02185	0.74405	1						
ARS1-B10-02190-12	TLS-SB-IA2-18 (4.6-5.6)032510	ARS1-10-00660-009	ASP-A-009	TH-228	0.888809	0.168861	0.200134	0.0784	0.028337	pCi	g	ARS1-B10-02190	0.49192	1						
ARS1-B10-02190-13	TLS-SB-IA2-18 (5.6-7.0)032510	ARS1-10-00660-010	ASP-A-009	TH-228	1.141485	0.153471	0.206365	0.061591	0.023765	pCi	g	ARS1-B10-02190	0.7833	1						
ARS1-B10-02190-05	TLS-SB-IA2-19 (0.5-1.5)032510	ARS1-10-00660-002	ASP-A-009	TH-228	0.689824	0.108517	0.136846	0.04313	0.015723	pCi	g	ARS1-B10-02190	0.92775	1						
ARS1-B10-02190-06	TLS-SB-IA2-19 (2.3-3.4)032510	ARS1-10-00660-003	ASP-A-009	TH-228	1.05214	0.147699	0.194898	0.065817	0.025915	pCi	g	ARS1-B10-02190	0.71389	1						
ARS1-B10-02190-07	TLS-SB-IA2-19 (3.4-4.0)032510	ARS1-10-00660-004	ASP-A-009	TH-228	0.882539	0.116567	0.158003	0.040222	0.014805	pCi	g	ARS1-B10-02190	0.90036	1						
ARS1-B10-02190-08	TLS-SB-IA2-19 (4.7-5.7)032510	ARS1-10-00660-005	ASP-A-009	TH-228	0.837001	0.14487	0.176694	0.069585	0.026364	pCi	g	ARS1-B10-02190	0.5936	1						
ARS1-B10-02190-20	TLS-SB-IA2-20 (1.0-2.0)032510	ARS1-10-00660-017	ASP-A-009	TH-228	0.714721	0.104826	0.135831	0.041523	0.015507	pCi	g	ARS1-B10-02190	0.99503	1						
ARS1-B10-02190-10	TLS-SB-IA2-18 (0.5-1.5)032510	ARS1-10-00660-007	ASP-A-009	TH-228	1.158384	0.158182	0.21124	0.070977	0.028214	pCi	g	ARS1-B10-02190	0.71763	1						
ARS1-B10-02190-11	TLS-SB-IA2-18 (2.5-4.0)032510	ARS1-10-00660-008	ASP-A-009	TH-228	0.975076	0.162081	0.200396	0.079115	0.030533	pCi	g	ARS1-B10-02190	0.57351	1						
ARS1-B10-02190-21	TLS-SB-IA2-20 (3.0-4.0)032510	ARS1-10-00660-018	ASP-A-009	TH-228	0.641345	0.108816	0.133601	0.046428	0.016926	pCi	g	ARS1-B10-02190	0.83093	1						
ARS1-B10-02190-22	TLS-SB-IA2-20 (6.0-7.0)032510	ARS1-10-00660-019	ASP-A-009	TH-228	0.751606	0.127194	0.156302	0.067077	0.026411	pCi	g	ARS1-B10-02190	0.70581	1						
ARS1-B10-02190-15	TLS-SB-IA2-21 (0.5-1.5)032510	ARS1-10-00660-012	ASP-A-009	TH-228	0.959634	0.14334	0.184386	0.059537	0.02248	pCi	g	ARS1-B10-02190	0.71326	1						
ARS1-B10-02190-16	TLS-SB-IA2-21 (1.5-2.5)032510	ARS1-10-00660-013	ASP-A-009	TH-228	0.443837	0.081226	0.097341	0.045797	0.018022	pCi	g	ARS1-B10-02190	1.06979	1						
ARS1-B10-02190-17	TLS-SB-IA2-21 (2.6-3.6)032510	ARS1-10-00660-014	ASP-A-009	TH-228	0.767922	0.11181	0.145311	0.05426	0.021695	pCi	g	ARS1-B10-02190	0.98	1						
ARS1-B10-02190-18	TLS-SB-IA2-21 (5.7-7.0)032510	ARS1-10-00660-015	ASP-A-009	TH-228	1.2077	0.156963	0.214342	0.06633	0.026255	pCi	g	ARS1-B10-02190	0.74786	1						
ARS1-B10-02190-09	TLS-SS-IA2-18 (0.0-0.5)03251	ARS1-10-00660-006	ASP-A-009	TH-228	1.009278	0.166971	0.206782	0.094915	0.038448	pCi	g	ARS1-B10-02190	0.61876	1						
ARS1-B10-02190-04	TLS-SS-IA2-19 (0.0-0.5)03251	ARS1-10-00660-001	ASP-A-009	TH-228	0.562885	0.105131	0.125223	0.052073	0.019447	pCi	g	ARS1-B10-02190	0.79581	1						
ARS1-B10-02190-19	TLS-SS-IA2-20 (0.0-05)03251	ARS1-10-00660-016	ASP-A-009	TH-228	1.081338	0.15854	0.205463	0.073349	0.028862	pCi	g	ARS1-B10-02190	0.66738	1						
ARS1-B10-02190-14	TLS-SS-IA2-21 (0.0-0.5)03251	ARS1-10-00660-011	ASP-A-009	TH-228	0.91664	0.168687	0.201813	0.086361	0.032819	pCi	g	ARS1-B10-02190	0.49328	1						
ARS1-B10-02190-23	TLS-SS-IA2-22 (0.0-0.5)03251	ARS1-10-00660-020	ASP-A-009	TH-228	0.839939	0.135375	0.16921	0.05639	0.020756	pCi	g	ARS1-B10-02190	0.68655	1						
ARS1-B10-02190-12	TLS-SB-IA2-18 (4.6-5.6)032510	ARS1-10-00660-009	ASP-A-009	TH-230	0.975725	0.171781	0.208364	0.062107	0.020604	pCi	g	ARS1-B10-02190	0.49192	1			2.76	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-13	TLS-SB-IA2-18 (5.6-7.0)032510	ARS1-10-00660-010	ASP-A-009	TH-230	1.63831	0.177681	0.26604	0.034791	0.010633	pCi	g	ARS1-B10-02190	0.7833	1			4.58	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-05	TLS-SB-IA2-19 (0.5-1.5)032510	ARS1-10-00660-002	ASP-A-009	TH-230	1.245887	0.141501	0.206631	0.03342	0.011091	pCi	g	ARS1-B10-02190	0.92775	1			3.97	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-06	TLS-SB-IA2-19 (2.3-3.4)032510	ARS1-10-00660-003	ASP-A-009	TH-230	1.253144	0.155068	0.21676	0.033739	0.010142	pCi	g	ARS1-B10-02190	0.71389	1			3.84	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-07	TLS-SB-IA2-19 (3.4-4.0)032510	ARS1-10-00660-004	ASP-A-009	TH-230	1.060686	0.124324	0.178579	0.027649	0.008721	pCi	g	ARS1-B10-02190	0.90036	1			3.55	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-08	TLS-SB-IA2-19 (4.7-5.7)032510	ARS1-10-00660-005	ASP-A-009	TH-230	1.587744	0.191746	0.271276	0.043917	0.013852	pCi	g	ARS1-B10-02190	0.5936	1			4.33	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-10	TLS-SB-IA2-18 (0.5-1.5)032510	ARS1-10-00660-007	ASP-A-009	TH-230	1.760287	0.187229	0.283402	0.033328	0.009667	pCi	g	ARS1-B10-02190	0.71763	1			4.74	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-11	TLS-SB-IA2-18 (2.5-4.0)032510	ARS1-10-00660-008	ASP-A-009	TH-230	1.397077	0.185982	0.251198	0.041568	0.012104	pCi	g	ARS1-B10-02190	0.57351	1			3.92	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-20	TLS-SB-IA2-20 (1.0-2.0)032510	ARS1-10-00660-017	ASP-A-009	TH-230	0.766386	0.104823	0.139884	0.015251	0.002573	pCi	g	ARS1-B10-02190	0.99503	1			2.50	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-21	TLS-SB-IA2-20 (3.0-4.0)032510	ARS1-10-00660-018	ASP-A-009	TH-230	1.08192	0.136935	0.18934	0.035966	0.011936	pCi	g	ARS1-B10-02190	0.83093	1			3.49	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-22	TLS-SB-IA2-20 (6.0-7.0)032510	ARS1-10-00660-019	ASP-A-009	TH-230	1.11083	0.147436	0.199404	0.034376	0.010334	pCi	g	ARS1-B10-02190	0.70581	1			3.47	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-15	TLS-SB-IA2-21 (0.5-1.5)032510	ARS1-10-00660-012	ASP-A-009	TH-230	1.628804	0.180305	0.266951	0.033561	0.00977	pCi	g	ARS1-B10-02190	0.71326	1			4.54	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-16	TLS-SB-IA2-21 (1.5-2.5)032510	ARS1-10-00660-013	ASP-A-009	TH-230	0.803441	0.103501	0.141921	0.018642	0.004632	pCi	g	ARS1-B10-02190	1.06979	1			2.69	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-17	TLS-SB-IA2-21 (2.6-3.6)032510	ARS1-10-00660-014	ASP-A-009	TH-230	1.033079	0.123877	0.175884	0.020774	0.005161	pCi	g	ARS1-B10-02190	0.98	1			3.45	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-18	TLS-SB-IA2-21 (5.7-7.0)032510	ARS1-10-00660-015	ASP-A-009	TH-230	1.135708	0.146957	0.20109	0.03716	0.011936	pCi	g	ARS1-B10-02190	0.74786	1			3.56	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-09	TLS-SS-IA2-18 (0.0-0.5)03251	ARS1-10-00660-006	ASP-A-009	TH-230	1.527802	0.194817	0.268421	0.051528	0.017097	pCi	g	ARS1-B10-02190	0.61876	1			4.16	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-04	TLS-SS-IA2-19 (0.0-0.5)03251	ARS1-10-00660-001	ASP-A-009	TH-230	1.590764	0.169115	0.256055	0.01913	0.003227	pCi	g	ARS1-B10-02190	0.79581	1			4.57	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-19	TLS-SS-IA2-20 (0.0-05)03251	ARS1-10-00660-016	ASP-A-009	TH-230	1.315738	0.168572	0.231742	0.048199	0.016586	pCi	g	ARS1-B10-02190	0.66738	1			3.88	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-14	TLS-SS-IA2-21 (0.0-0.5)03251	ARS1-10-00660-011	ASP-A-009	TH-230	1.244997	0.189014	0.241594	0.059221	0.019644	pCi	g	ARS1-B10-02190	0.49328	1			3.47	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-23	TLS-SS-IA2-22 (0.0-0.5)03251	ARS1-10-00660-020	ASP-A-009	TH-230	1.475519	0.173598	0.248875	0.038751	0.012222	pCi	g	ARS1-B10-02190	0.68655	1			4.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02190-12	TLS-SB-IA2-18 (4.6-5.6)032510	ARS1-10-00660-009	ASP-A-009	TH-232	0.726864	0.148629	0.17265	0.061983	0.020563	pCi	g	ARS1-B10-02190	0.49192	1						
ARS1-B10-02190-13	TLS-SB-IA2-18 (5.6-7.0)032510	ARS1-10-00660-010	ASP-A-009	TH-232	1.016204	0.139912	0.186172	0.032754	0.009628	pCi	g	ARS1-B10-02190	0.7833	1						
ARS1-B10-02190-05	TLS-SB-IA2-19 (0.5-1.5)032510	ARS1-10-00660-002	ASP-A-009	TH-232	0.709554	0.106926	0.137067	0.03191	0.010347	pCi	g	ARS1-B10-02190	0.92775	1						
ARS1-B10-02190-06	TLS-SB-IA2-19 (2.3-3.4)032510	ARS1-10-00660-003	ASP-A-009	TH-232	0.788583	0.122768	0.155421	0.026673	0.006623	pCi	g	ARS1-B10-02190	0.71389	1						
ARS1-B10-02190-07	TLS-SB-IA2-19 (3.4-4.0)032510	ARS1-10-00660-004	ASP-A-009	TH-232	0.67533	0.099118	0.128399	0.0244	0.007106	pCi	g	ARS1-B10-02190	0.90036	1						
ARS1-B10-02190-08	TLS-SB-IA2-19 (4.7-5.7)032510	ARS1-10-00660-005	ASP-A-009	TH-232	0.983451	0.150498	0.191775	0.032144	0.007981	pCi	g	ARS1-B10-02190	0.5936	1						
ARS1-B10-02190-10	TLS-SB-IA2-18 (0.5-1.5)032510	ARS1-10-00660-007	ASP-A-009	TH-232	0.950499	0.137428	0.179118	0.027742	0.006887	pCi	g	ARS1-B10-02190	0.71763	1						
ARS1-B10-02190-11	TLS-SB-IA2-18 (2.5-4.0)032510	ARS1-10-00660-008	ASP-A-009	TH-232	0.863169	0.147369	0.180557	0.055524	0.019099	pCi	g	ARS1-B10-02190	0.57351	1						
ARS1-B10-02190-20	TLS-SB-IA2-20 (1.0-2.0)032510	ARS1-10-00660-017	ASP-A-009	TH-232	0.614881	0.093758	0.119638	0.010085	0	pCi	g	ARS1-B10-02190	0.99503	1						
ARS1-B10-02190-21	TLS-SB-IA2-20 (3.0-4.0)032510	ARS1-10-00660-018	ASP-A-009	TH-232	0.646928	0.106043	0.131751	0.034341	0.011135	pCi	g	ARS1-B10-02190	0.83093	1						
ARS1-B10-02190-22	TLS-SB-IA2-20 (6.0-7.0)032510	ARS1-10-00660-019	ASP-A-009	TH-232	1.689992	0.181216	0.273054	0.027177	0.006748	pCi	g	ARS1-B10-02190	0.70581	1						
ARS1-B10-02190-15	TLS-SB-IA2-21 (0.5-1.5)032510	ARS1-10-00660-012	ASP-A-009	TH-232	0.802145	0.126941	0.159728	0.037877	0.011942	pCi	g	ARS1-B10-02190	0.71326	1						
ARS1-B10-02190-16	TLS-SB-IA2-21 (1.5-2.5)032510	ARS1-10-00660-013	ASP-A-009	TH-232	0.454464	0.077955	0.095362	0.020844	0.005742	pCi	g	ARS1-B10-02190	1.06979	1						
ARS1-B10-02190-17	TLS-SB-IA2-21 (2.6-3.6)032510	ARS1-10-00660-014	ASP-A-009	TH-232	0.816097	0.109856	0.147638	0.010432	0	pCi	g	ARS1-B10-02190	0.98	1						
ARS1-B10-02190-18	TLS-SB-IA2-21 (5.7-7.0)032510	ARS1-10-00660-015	ASP-A-009	TH-232	0.922545	0.132008	0.172795	0.028482	0.00761	pCi	g	ARS1-B10-02190	0.74786	1						
ARS1-B10-02190-09	TLS-SS-IA2-18 (0.0-0.5)03251	ARS1-10-00660-006	ASP-A-009	TH-232	1.098869	0.165093	0.211882	0.046853	0.014777	pCi	g	ARS1-B10-02190	0.61876	1						
ARS1-B10-02190-04	TLS-SS-IA2-19 (0.0-0.5)03251	ARS1-10-00660-001	ASP-A-009	TH-232	0.658523	0.108672	0.1347	0.012651	0	pCi	g	ARS1-B10-02190	0.79581	1						
ARS1-B10-02190-19	TLS-SS-IA2-20 (0.0-05)03251	ARS1-10-00660-016	ASP-A-009	TH-232	0.687802	0.12243	0.147985	0.04719	0.016097	pCi	g	ARS1-B10-02190	0.66738	1						
ARS1-B10-02190-14	TLS-SS-IA2-21 (0.0-0.5)03251	ARS1-10-00660-011	ASP-A-009	TH-232	0.81822	0.152347	0.181629	0.039498	0.009802	pCi	g	ARS1-B10-02190	0.49328	1						
ARS1-B10-02190-23	TLS-SS-IA2-22 (0.0-0.5)03251	ARS1-10-00660-020	ASP-A-009	TH-232	0.896245	0.135206	0.173246	0.034197	0.009959	pCi	g	ARS1-B10-02190	0.68655	1						
ARS1-B10-02204-09	TLS-SB-IA2-17 (1.0-2.0)032510	ARS1-10-00660-026	ASP-A-009	TH-228	0.722115	0.116881	0.14587	0.059137	0.023271	pCi	g	ARS1-B10-02204	0.76896	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02204-10	TLS-SB-IA2-17 (2.8-3.8)032510	ARS1-10-00660-027	ASP-A-009	TH-228	0.648928	0.108518	0.133893	0.059535	0.023804	pCi	g	ARS1-B10-02204	0.82081	1						
ARS1-B10-02204-11	TLS-SB-IA2-17 (6.0-7.0)032510	ARS1-10-00660-028	ASP-A-009	TH-228	0.654295	0.107642	0.133567	0.056311	0.022289	pCi	g	ARS1-B10-02204	0.82048	1						
ARS1-B10-02204-12	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	ASP-A-009	TH-228	0.561725	0.086641	0.110071	0.041969	0.016514	pCi	g	ARS1-B10-02204	1.03117	1						
ARS1-B10-02204-13	TLS-SB-IA2-17 (7.0-8.0)032510	ARS1-10-00660-030	ASP-A-009	TH-228	0.679833	0.10549	0.133713	0.044051	0.016451	pCi	g	ARS1-B10-02204	0.93644	1						
ARS1-B10-02204-04	TLS-SB-IA2-22 (1.7-2.7)032510	ARS1-10-00660-021	ASP-A-009	TH-228	0.804036	0.147214	0.176395	0.078357	0.030241	pCi	g	ARS1-B10-02204	0.55786	1						
ARS1-B10-02204-05	TLS-SB-IA2-22 (3.0-4.0)032510	ARS1-10-00660-022	ASP-A-009	TH-228	0.690793	0.122448	0.148203	0.053309	0.019268	pCi	g	ARS1-B10-02204	0.69097	1						
ARS1-B10-02204-06	TLS-SB-IA2-22 (5.0-6.0)032510	ARS1-10-00660-023	ASP-A-009	TH-228	0.730126	0.123898	0.152111	0.061577	0.02376	pCi	g	ARS1-B10-02204	0.79206	1						
ARS1-B10-02204-07	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	ASP-A-009	TH-228	0.646685	0.116148	0.139997	0.058176	0.022108	pCi	g	ARS1-B10-02204	0.71828	1						
ARS1-B10-02204-08	TLS-SS-IA2-17 (0.2-0.7)03251	ARS1-10-00660-025	ASP-A-009	TH-228	0.833373	0.139971	0.172443	0.064799	0.024467	pCi	g	ARS1-B10-02204	0.65191	1						
ARS1-B10-02204-21	TLS-SB-IA1-B5 (15.0-16.0)03261	ARS1-10-00674-008	ASP-A-009	TH-228	1.594937	0.243212	0.310339	0.091908	0.033219	pCi	g	ARS1-B10-02204	0.39384	1						
ARS1-B10-02204-22	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	ASP-A-009	TH-228	1.982769	0.227721	0.330581	0.078774	0.030395	pCi	g	ARS1-B10-02204	0.59527	1						
ARS1-B10-02204-23	TLS-SB-IA1-B5 (24.0-25.0)03261	ARS1-10-00674-010	ASP-A-009	TH-228	0.710162	0.114173	0.142836	0.051696	0.019646	pCi	g	ARS1-B10-02204	0.72784	1						
ARS1-B10-02204-15	TLS-SB-IA1-B1 (1.2-2.2)03261	ARS1-10-00674-002	ASP-A-009	TH-228	0.853679	0.120454	0.158601	0.053928	0.021234	pCi	g	ARS1-B10-02204	0.85381	1						
ARS1-B10-02204-17	TLS-SB-IA1-B1 (14.0-15.0)03261	ARS1-10-00674-004	ASP-A-009	TH-228	1.180818	0.160287	0.214614	0.061461	0.023286	pCi	g	ARS1-B10-02204	0.66413	1						
ARS1-B10-02204-18	TLS-SB-IA1-B1 (16.3-17.3)03261	ARS1-10-00674-005	ASP-A-009	TH-228	0.632648	0.121109	0.143226	0.077854	0.031537	pCi	g	ARS1-B10-02204	0.75228	1						
ARS1-B10-02204-16	TLS-SB-IA1-B1 (7.0-8.0)03261	ARS1-10-00674-003	ASP-A-009	TH-228	1.575789	0.189781	0.268865	0.059939	0.022062	pCi	g	ARS1-B10-02204	0.64815	1						
ARS1-B10-02204-20	TLS-SB-IA1-B5 (5.0-6.0)03261	ARS1-10-00674-007	ASP-A-009	TH-228	1.18441	0.160635	0.215163	0.065034	0.025099	pCi	g	ARS1-B10-02204	0.66961	1						
ARS1-B10-02204-14	TLS-SS-IA1-B1 (0.7-1.2)03261	ARS1-10-00674-001	ASP-A-009	TH-228	1.101538	0.141613	0.194367	0.046448	0.016933	pCi	g	ARS1-B10-02204	0.81171	1						
ARS1-B10-02204-19	TLS-SS-IA1-B5 (1.3-1.8)03261	ARS1-10-00674-006	ASP-A-009	TH-228	0.410168	0.090975	0.103605	0.062166	0.024711	pCi	g	ARS1-B10-02204	0.7566	1						
ARS1-B10-02204-09	TLS-SB-IA2-17 (1.0-2.0)03251	ARS1-10-00660-026	ASP-A-009	TH-230	1.190274	0.143101	0.20291	0.024063	0.005978	pCi	g	ARS1-B10-02204	0.76896	1			3.02	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-10	TLS-SB-IA2-17 (2.8-3.8)03251	ARS1-10-00660-027	ASP-A-009	TH-230	1.023314	0.129138	0.17881	0.022785	0.00566	pCi	g	ARS1-B10-02204	0.82081	1			2.53	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-11	TLS-SB-IA2-17 (6.0-7.0)03251	ARS1-10-00660-028	ASP-A-009	TH-230	1.228928	0.140683	0.204579	0.031536	0.010129	pCi	g	ARS1-B10-02204	0.82048	1			3.17	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-12	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	ASP-A-009	TH-230	0.741568	0.09572	0.13113	0.027567	0.009487	pCi	g	ARS1-B10-02204	1.03117	1		J	1.46	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02204-13	TLS-SB-IA2-17 (7.0-8.0)03251	ARS1-10-00660-030	ASP-A-009	TH-230	0.823616	0.111903	0.14977	0.016173	0.002728	pCi	g	ARS1-B10-02204	0.93644	1		J	1.78	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02204-04	TLS-SB-IA2-22 (1.7-2.7)03251	ARS1-10-00660-021	ASP-A-009	TH-230	1.478149	0.190317	0.261029	0.041156	0.011984	pCi	g	ARS1-B10-02204	0.55786	1			3.89	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-05	TLS-SB-IA2-22 (3.0-4.0)03251	ARS1-10-00660-022	ASP-A-009	TH-230	1.47639	0.173231	0.248694	0.042217	0.014006	pCi	g	ARS1-B10-02204	0.69097	1			4.05	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-06	TLS-SB-IA2-22 (5.0-6.0)03251	ARS1-10-00660-023	ASP-A-009	TH-230	1.025324	0.140738	0.18752	0.034772	0.010627	pCi	g	ARS1-B10-02204	0.79206	1			2.99	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-07	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	ASP-A-009	TH-230	1.320802	0.159312	0.225528	0.03988	0.013229	pCi	g	ARS1-B10-02204	0.71828	1			3.77	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-08	TLS-SS-IA2-17 (0.2-0.7)03251	ARS1-10-00660-025	ASP-A-009	TH-230	1.76479	0.195764	0.289513	0.036514	0.010629	pCi	g	ARS1-B10-02204	0.65191	1			4.49	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-21	TLS-SB-IA1-B5 (15.0-16.0)03261	ARS1-10-00674-008	ASP-A-009	TH-230	2.887494	0.318041	0.472165	0.072837	0.024164	pCi	g	ARS1-B10-02204	0.39384	1			5.17	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-22	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	ASP-A-009	TH-230	2.387209	0.242534	0.376916	0.044515	0.013605	pCi	g	ARS1-B10-02204	0.59527	1			5.12	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-23	TLS-SB-IA1-B5 (24.0-25.0)03261	ARS1-10-00674-010	ASP-A-009	TH-230	1.078897	0.135838	0.188296	0.035464	0.011764	pCi	g	ARS1-B10-02204	0.72784	1			3.23	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-15	TLS-SB-IA1-B1 (1.2-2.2)03261	ARS1-10-00674-002	ASP-A-009	TH-230	1.525342	0.154737	0.240686	0.027655	0.008313	pCi	g	ARS1-B10-02204	0.85381	1			4.36	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-17	TLS-SB-IA1-B1 (14.0-15.0)03261	ARS1-10-00674-004	ASP-A-009	TH-230	2.099673	0.207015	0.327495	0.038805	0.012239	pCi	g	ARS1-B10-02204	0.66413	1			4.99	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-18	TLS-SB-IA1-B1 (16.3-17.3)03261	ARS1-10-00674-005	ASP-A-009	TH-230	1.13989	0.152516	0.205527	0.042282	0.014029	pCi	g	ARS1-B10-02204	0.75228	1			3.28	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-16	TLS-SB-IA1-B1 (7.0-8.0)03261	ARS1-10-00674-003	ASP-A-009	TH-230	3.879259	0.289692	0.551127	0.041218	0.013	pCi	g	ARS1-B10-02204	0.64815	1			6.23	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-20	TLS-SB-IA1-B5 (5.0-6.0)03261	ARS1-10-00674-007	ASP-A-009	TH-230	2.8336	0.239763	0.418057	0.034183	0.009953	pCi	g	ARS1-B10-02204	0.66961	1			5.68	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-14	TLS-SS-IA1-B1 (0.7-1.2)03261	ARS1-10-00674-001	ASP-A-009	TH-230	3.686794	0.251949	0.511885	0.036005	0.011949	pCi	g	ARS1-B10-02204	0.81171	1			6.32	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-19	TLS-SS-IA1-B5 (1.3-1.8)03261	ARS1-10-00674-006	ASP-A-009	TH-230	0.976084	0.13065	0.176029	0.029203	0.00847	pCi	g	ARS1-B10-02204	0.7566	1			2.89	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02204-09	TLS-SB-IA2-17 (1.0-2.0)03251	ARS1-10-00660-026	ASP-A-009	TH-232	0.94493	0.127523	0.171186	0.026906	0.007412	pCi	g	ARS1-B10-02204	0.76896	1						
ARS1-B10-02204-10	TLS-SB-IA2-17 (2.8-3.8)03251	ARS1-10-00660-027	ASP-A-009	TH-232	0.686513	0.105523	0.134237	0.011442	0	pCi	g	ARS1-B10-02204	0.82081	1						
ARS1-B10-02204-11	TLS-SB-IA2-17 (6.0-7.0)03251	ARS1-10-00660-028	ASP-A-009	TH-232	0.569378	0.09562	0.117808	0.024171	0.006458	pCi	g	ARS1-B10-02204	0.82048	1						
ARS1-B10-02204-12	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	ASP-A-009	TH-232	0.479805	0.077163	0.096524	0.026991	0.009207	pCi	g	ARS1-B10-02204	1.03117	1						
ARS1-B10-02204-13	TLS-SB-IA2-17 (7.0-8.0)03251	ARS1-10-00660-030	ASP-A-009	TH-232	0.947037	0.119824	0.165707	0.010695	0	pCi	g	ARS1-B10-02204	0.93644	1						
ARS1-B10-02204-04	TLS-SB-IA2-22 (1.7-2.7)03251	ARS1-10-00660-021	ASP-A-009	TH-232	0.669707	0.129588	0.152789	0.054974	0.01891	pCi	g	ARS1-B10-02204	0.55786	1						
ARS1-B10-02204-05	TLS-SB-IA2-22 (3.0-4.0)03251	ARS1-10-00660-022	ASP-A-009	TH-232	0.550118	0.106457	0.125514	0.042132	0.013978	pCi	g	ARS1-B10-02204	0.69097	1						
ARS1-B10-02204-06	TLS-SB-IA2-22 (5.0-6.0)03251	ARS1-10-00660-023	ASP-A-009	TH-232	0.810322	0.12501	0.158805	0.032736	0.009623	pCi	g	ARS1-B10-02204	0.79206	1						
ARS1-B10-02204-07	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	ASP-A-009	TH-232	0.826902	0.125557	0.160476	0.026598	0.006601	pCi	g	ARS1-B10-02204	0.71828	1						
ARS1-B10-02204-08	TLS-SS-IA2-17 (0.2-0.7)03251	ARS1-10-00660-025	ASP-A-009	TH-232	0.972827	0.145721	0.18724	0.041209	0.012992	pCi	g	ARS1-B10-02204	0.65191	1						
ARS1-B10-02204-21	TLS-SB-IA1-B5 (15.0-16.0)03261	ARS1-10-00674-008	ASP-A-009	TH-232	1.773308	0.249625	0.329009	0.072691	0.024116	pCi	g	ARS1-B10-02204	0.39384	1						
ARS1-B10-02204-22	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	ASP-A-009	TH-232	2.020776	0.222907	0.330661	0.041909	0.012319	pCi	g	ARS1-B10-02204	0.59527	1						
ARS1-B10-02204-23	TLS-SB-IA1-B5 (24.0-25.0)03261	ARS1-10-00674-010	ASP-A-009	TH-232	0.713952	0.110024	0.139825	0.023653	0.00587	pCi	g	ARS1-B10-02204	0.72784	1						
ARS1-B10-02204-15	TLS-SB-IA1-B1 (1.2-2.2)03261	ARS1-10-00674-002	ASP-A-009	TH-232	0.938932	0.121205	0.166037	0.021863	0.005429	pCi	g	ARS1-B10-02204	0.85381	1						
ARS1-B10-02204-17	TLS-SB-IA1-B1 (14.0-15.0)03261	ARS1-10-00674-004	ASP-A-009	TH-232	1.343189	0.165212	0.231622	0.028402	0.007052	pCi	g	ARS1-B10-02204	0.66413	1						
ARS1-B10-02204-18	TLS-SB-IA1-B1 (16.3-17.3)03261	ARS1-10-00674-005	ASP-A-009	TH-232	0.726767	0.121787	0.150158	0.038445	0.012126	pCi	g	ARS1-B10-02204	0.75228	1						
ARS1-B10-02204-16	TLS-SB-IA1-B1 (7.0-8.0)03261	ARS1-10-00674-003	ASP-A-009	TH-232	1.258952	0.165114	0.224532	0.036374	0.010593	pCi	g	ARS1-B10-02204	0.64815	1						
ARS1-B10-02204-20	TLS-SB-IA1-B5 (5.0-6.0)03261	ARS1-10-00674-007	ASP-A-009	TH-232	1.067329	0.148011	0.196336	0.04566	0.015706	pCi	g	ARS1-B10-02204	0.66961	1						
ARS1-B10-02204-14	TLS-SS-IA1-B1 (0.7-1.2)03261	ARS1-10-00674-001	ASP-A-009	TH-232	1.189973	0.143383	0.203084	0.034378	0.011147	pCi	g	ARS1-B10-02204	0.81171	1						
ARS1-B10-02204-19	TLS-SS-IA1-B5 (1.3-1.8)03261	ARS1-10-00674-006	ASP-A-009	TH-232	0.588526	0.1013	0.123778	0.024308	0.006035	pCi	g	ARS1-B10-02204	0.7566	1						
ARS1-B10-02211-22	TLS-SB-IA1-B11 (5.5-6.5)03261	ARS1-10-00674-029	ASP-A-009	TH-228	1.049725	0.162887	0.206466	0.068019	0.025402	pCi	g	ARS1-B10-02211	0.61526	1						
ARS1-B10-02211-23	TLS-SB-IA1-B11 (23.0-24.0)03261	ARS1-10-00674-030	ASP-A-009	TH-228	0.785177	0.121859	0.154451	0.04782	0.017433	pCi	g	ARS1-B10-02211	0.76397	1						
ARS1-B10-02211-04	TLS-SB-IA1-B5 (25.0-26.0)03261	ARS1-10-00674-011	ASP-A-009	TH-228	0.702964	0.127795	0.15346	0.07296	0.028879	pCi	g	ARS1-B10-02211	0.68622	1						
ARS1-B10-02211-18	TLS-SB-IA1-B6 (15.0-16.0)03261	ARS1-10-00674-025	ASP-A-009	TH-228	2.581714	0.301676	0.434015	0.113153	0.044527	pCi	g	ARS1-B10-02211	0.42607	1						
ARS1-B10-02211-19	TLS-SB-IA1-B6 (27.0-28.0)03261	ARS1-10-00674-026	ASP-A-009	TH-228	0.759636	0.122041	0.152719	0.064642	0.025846	pCi	g	ARS1-B10-02211	0.81689	1						
ARS1-B10-02211-20	TLS-SB-IA1-B6 (29.0-30.0)03261	ARS1-10-00674-027	ASP-A-009	TH-228	0.648028	0.122376	0.145293	0.072191	0.028575	pCi	g	ARS1-B10-02211	0.66784	1						
ARS1-B10-02211-17	TLS-SB-IA1-B6 (6.1-7.1)03261	ARS1-10-00674-024	ASP-A-009	TH-228	0.770331	0.139834	0.167993	0.069483	0.026236	pCi	g	ARS1-B10-02211	0.62664	1						
ARS1-B10-02211-08	TLS-SB-IA1-B8 (24.0-25.0)03261	ARS1-10-00674-015	ASP-A-009	TH-228	0.514366	0.105598	0.122538	0.06581	0.025912	pCi	g	ARS1-B10-02211	0.70767	1						
ARS1-B10-02211-09	TLS-SB-IA1-B8 (27.0-28.0)03261	ARS1-10-00674-016	ASP-A-009	TH-228	0.602313	0.101326	0.124764	0.043928	0.016169	pCi	g	ARS1-B10-02211	0.83074	1						
ARS1-B10-02211-06	TLS-SB-IA1-B8 (3.0-4.0)03261	ARS1-10-00674-013	ASP-A-009	TH-228	0.408401	0.079836	0.093863	0.041208	0.015389	pCi	g	ARS1-B10-02211	0.7854	1						
ARS1-B10-02211-07	TLS-SB-IA1-B8 (7.0-8.0)03261	ARS1-10-00674-014	ASP-A-009	TH-228	2.734962	0.297213	0.44452	0.082876	0.030213	pCi	g	ARS1-B10-02211	0.47714	1						
ARS1-B10-02211-11	TLS-SB-IA1-B9 (1.7-2.7)03261	ARS1-10-00674-018	ASP-A-009	TH-228	1.148308	0.162353	0.213588	0.080418	0.032575	pCi	g	ARS1-B10-02211	0.71128	1						
ARS1-B10-02211-13	TLS-SB-IA1-B9 (17.6-18.6)03261	ARS1-10-00674-020	ASP-A-009	TH-228	1.197602	0.16975	0.223082	0.071603	0.027634	pCi	g	ARS1-B10-02211	0.61026	1						
ARS1-B10-02211-14	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	ASP-A-009	TH-228	1.481843	0.193268	0.263492	0.062905	0.022736	pCi	g	ARS1-B10-02211	0.61295	1						
ARS1-B10-02211-15	TLS-SB-IA1-B9 (21.0-22.0)03261	ARS1-10-00674-022	ASP-A-009	TH-228	0.602166	0.137752	0.155796	0.08882	0.034272	pCi	g	ARS1-B10-02211	0.53482	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02211-12	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	ASP-A-009	TH-228	0.391121	0.094038	0.105251	0.068536	0.027244	pCi	g	ARS1-B10-02211	0.74594	1						
ARS1-B10-02211-21	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	ASP-A-009	TH-228	0.565385	0.112574	0.13169	0.06823	0.026847	pCi	g	ARS1-B10-02211	0.71712	1						
ARS1-B10-02211-16	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	ASP-A-009	TH-228	0.539756	0.09509	0.115316	0.046804	0.017787	pCi	g	ARS1-B10-02211	0.91011	1						
ARS1-B10-02211-05	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	ASP-A-009	TH-228	0.730671	0.115798	0.145629	0.057479	0.022617	pCi	g	ARS1-B10-02211	0.85199	1						
ARS1-B10-02211-10	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	ASP-A-009	TH-228	0.502321	0.106918	0.122952	0.061763	0.023401	pCi	g	ARS1-B10-02211	0.69257	1						
ARS1-B10-02211-22	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	ASP-A-009	TH-230	1.899685	0.211212	0.31197	0.024986	0.004215	pCi	g	ARS1-B10-02211	0.61526	1						
ARS1-B10-02211-23	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	ASP-A-009	TH-230	11.8191	0.457115	1.49982	0.03705	0.012296	pCi	g	ARS1-B10-02211	0.76397	1						
ARS1-B10-02211-04	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	ASP-A-009	TH-230	1.372341	0.169385	0.237068	0.04089	0.013134	pCi	g	ARS1-B10-02211	0.68622	1						
ARS1-B10-02211-18	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	ASP-A-009	TH-230	3.839566	0.355431	0.58453	0.046067	0.011445	pCi	g	ARS1-B10-02211	0.42607	1						
ARS1-B10-02211-19	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	ASP-A-009	TH-230	1.652932	0.17099	0.262959	0.024753	0.006149	pCi	g	ARS1-B10-02211	0.81689	1						
ARS1-B10-02211-20	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	ASP-A-009	TH-230	1.383591	0.169148	0.237853	0.040451	0.012993	pCi	g	ARS1-B10-02211	0.66784	1						
ARS1-B10-02211-17	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	ASP-A-009	TH-230	1.810996	0.205426	0.300179	0.039174	0.011404	pCi	g	ARS1-B10-02211	0.62664	1						
ARS1-B10-02211-08	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	ASP-A-009	TH-230	1.666935	0.178715	0.26931	0.03374	0.010143	pCi	g	ARS1-B10-02211	0.70767	1						
ARS1-B10-02211-09	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	ASP-A-009	TH-230	1.129225	0.134078	0.19132	0.030201	0.009525	pCi	g	ARS1-B10-02211	0.83074	1						
ARS1-B10-02211-06	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	ASP-A-009	TH-230	0.840597	0.109381	0.149284	0.015141	0.002554	pCi	g	ARS1-B10-02211	0.7854	1						
ARS1-B10-02211-07	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	ASP-A-009	TH-230	3.790734	0.341615	0.571491	0.064227	0.021315	pCi	g	ARS1-B10-02211	0.47714	1						
ARS1-B10-02211-11	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	ASP-A-009	TH-230	2.493482	0.228512	0.378203	0.043667	0.014489	pCi	g	ARS1-B10-02211	0.71128	1						
ARS1-B10-02211-13	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	ASP-A-009	TH-230	2.239494	0.223746	0.351173	0.03763	0.010957	pCi	g	ARS1-B10-02211	0.61026	1						
ARS1-B10-02211-14	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	ASP-A-009	TH-230	2.500446	0.244617	0.3888	0.049844	0.016536	pCi	g	ARS1-B10-02211	0.61295	1						
ARS1-B10-02211-15	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	ASP-A-009	TH-230	1.531815	0.206628	0.277435	0.050183	0.015337	pCi	g	ARS1-B10-02211	0.53482	1						
ARS1-B10-02211-12	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	ASP-A-009	TH-230	1.342069	0.160746	0.228362	0.032189	0.009336	pCi	g	ARS1-B10-02211	0.74594	1						
ARS1-B10-02211-21	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	ASP-A-009	TH-230	1.262679	0.159251	0.220568	0.044842	0.015431	pCi	g	ARS1-B10-02211	0.71712	1						
ARS1-B10-02211-16	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	ASP-A-009	TH-230	0.930391	0.120046	0.164485	0.032101	0.010648	pCi	g	ARS1-B10-02211	0.91011	1						
ARS1-B10-02211-05	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	ASP-A-009	TH-230	1.345205	0.150675	0.221666	0.037785	0.013003	pCi	g	ARS1-B10-02211	0.85199	1						
ARS1-B10-02211-10	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	ASP-A-009	TH-230	1.591594	0.18081	0.263998	0.038989	0.012297	pCi	g	ARS1-B10-02211	0.69257	1						
ARS1-B10-02211-22	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	ASP-A-009	TH-232	1.077335	0.158853	0.205398	0.016523	0	pCi	g	ARS1-B10-02211	0.61526	1						
ARS1-B10-02211-23	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	ASP-A-009	TH-232	0.689204	0.111061	0.138827	0.035376	0.011471	pCi	g	ARS1-B10-02211	0.76397	1						
ARS1-B10-02211-04	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	ASP-A-009	TH-232	0.668541	0.118023	0.143032	0.031341	0.008374	pCi	g	ARS1-B10-02211	0.68622	1						
ARS1-B10-02211-18	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	ASP-A-009	TH-232	7.083384	0.482221	0.982571	0.051509	0.014189	pCi	g	ARS1-B10-02211	0.42607	1						
ARS1-B10-02211-19	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	ASP-A-009	TH-232	0.832998	0.121152	0.157523	0.01243	0	pCi	g	ARS1-B10-02211	0.81689	1						
ARS1-B10-02211-20	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	ASP-A-009	TH-232	0.609399	0.112109	0.134138	0.031004	0.008284	pCi	g	ARS1-B10-02211	0.66784	1						
ARS1-B10-02211-17	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	ASP-A-009	TH-232	0.555555	0.114625	0.132843	0.044211	0.013939	pCi	g	ARS1-B10-02211	0.62664	1						
ARS1-B10-02211-08	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	ASP-A-009	TH-232	0.664375	0.112731	0.138405	0.026674	0.006623	pCi	g	ARS1-B10-02211	0.70767	1						
ARS1-B10-02211-09	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	ASP-A-009	TH-232	0.501392	0.089412	0.108012	0.026651	0.007762	pCi	g	ARS1-B10-02211	0.83074	1						
ARS1-B10-02211-06	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	ASP-A-009	TH-232	0.319478	0.067339	0.077624	0.010013	0	pCi	g	ARS1-B10-02211	0.7854	1						
ARS1-B10-02211-07	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	ASP-A-009	TH-232	3.151751	0.311226	0.491897	0.061325	0.019885	pCi	g	ARS1-B10-02211	0.47714	1						
ARS1-B10-02211-11	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	ASP-A-009	TH-232	1.058094	0.149032	0.196378	0.039705	0.012523	pCi	g	ARS1-B10-02211	0.71128	1						
ARS1-B10-02211-13	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	ASP-A-009	TH-232	0.933939	0.145565	0.184201	0.050264	0.01729	pCi	g	ARS1-B10-02211	0.61026	1						
ARS1-B10-02211-14	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	ASP-A-009	TH-232	1.360546	0.180747	0.244354	0.049744	0.016503	pCi	g	ARS1-B10-02211	0.61295	1						
ARS1-B10-02211-15	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	ASP-A-009	TH-232	0.627033	0.132587	0.152717	0.047245	0.013888	pCi	g	ARS1-B10-02211	0.53482	1						
ARS1-B10-02211-12	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	ASP-A-009	TH-232	0.477827	0.095918	0.111961	0.026794	0.006652	pCi	g	ARS1-B10-02211	0.74594	1						
ARS1-B10-02211-21	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	ASP-A-009	TH-232	0.485316	0.099583	0.115574	0.043904	0.014976	pCi	g	ARS1-B10-02211	0.71712	1						
ARS1-B10-02211-16	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	ASP-A-009	TH-232	0.574055	0.093887	0.116741	0.02141	0.005313	pCi	g	ARS1-B10-02211	0.91011	1						
ARS1-B10-02211-05	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	ASP-A-009	TH-232	0.490025	0.09161	0.109087	0.036994	0.012619	pCi	g	ARS1-B10-02211	0.85199	1						
ARS1-B10-02211-10	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	ASP-A-009	TH-232	0.673897	0.117453	0.14293	0.028537	0.007086	pCi	g	ARS1-B10-02211	0.69257	1						
ARS1-B10-02243-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	ASP-A-009	TH-228	3.436826	0.318544	0.523458	0.081236	0.030338	pCi	g	ARS1-B10-02243	0.51087	1						
ARS1-B10-02243-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	ASP-A-009	TH-228	0.84364	0.135584	0.169645	0.054984	0.020045	pCi	g	ARS1-B10-02243	0.7123	1						
ARS1-B10-02243-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	ASP-A-009	TH-228	2.164843	0.258625	0.367892	0.101061	0.040003	pCi	g	ARS1-B10-02243	0.48997	1						
ARS1-B10-02243-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	ASP-A-009	TH-228	2.15952	0.270755	0.376071	0.108446	0.042672	pCi	g	ARS1-B10-02243	0.44953	1						
ARS1-B10-02243-04	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	ASP-A-009	TH-228	0.806367	0.136856	0.168011	0.079519	0.032211	pCi	g	ARS1-B10-02243	0.68464	1						
ARS1-B10-02243-05	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	ASP-A-009	TH-228	0.484649	0.105764	0.120901	0.071325	0.028352	pCi	g	ARS1-B10-02243	0.69435	1						
ARS1-B10-02243-06	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	ASP-A-009	TH-228	0.639105	0.112924	0.136815	0.058231	0.022473	pCi	g	ARS1-B10-02243	0.78115	1						
ARS1-B10-02243-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	ASP-A-009	TH-228	2.273308	0.25506	0.374893	0.081596	0.030915	pCi	g	ARS1-B10-02243	0.5316	1						
ARS1-B10-02243-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	ASP-A-009	TH-228	3.770627	0.362753	0.582469	0.126029	0.051051	pCi	g	ARS1-B10-02243	0.46087	1						
ARS1-B10-02243-22	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	ASP-A-009	TH-228	0.729524	0.12973	0.156856	0.067281	0.025966	pCi	g	ARS1-B10-02243	0.67145	1						
ARS1-B10-02243-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	ASP-A-009	TH-228	1.257779	0.161522	0.221806	0.054255	0.01997	pCi	g	ARS1-B10-02243	0.72931	1						
ARS1-B10-02243-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	ASP-A-009	TH-228	1.611061	0.223447	0.296381	0.086582	0.032692	pCi	g	ARS1-B10-02243	0.48947	1						
ARS1-B10-02243-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	ASP-A-009	TH-228	0.541384	0.112188	0.129875	0.070349	0.027683	pCi	g	ARS1-B10-02243	0.66776	1						
ARS1-B10-02243-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	ASP-A-009	TH-228	1.676553	0.206135	0.28905	0.076064	0.02935	pCi	g	ARS1-B10-02243	0.6451	1						
ARS1-B10-02243-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	ASP-A-009	TH-228	2.039648	0.227462	0.335421	0.073002	0.027743	pCi	g	ARS1-B10-02243	0.57217	1						
ARS1-B10-02243-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	ASP-A-009	TH-228	0.651464	0.10693	0.132791	0.057715	0.023076	pCi	g	ARS1-B10-02243	0.91731	1						
ARS1-B10-02243-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	ASP-A-009	TH-228	0.892577	0.136121	0.173685	0.065406	0.025753	pCi	g	ARS1-B10-02243	0.7178	1						
ARS1-B10-02243-23	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	ASP-A-009	TH-228	0.7015	0.121782	0.148389	0.051998	0.018794	pCi	g	ARS1-B10-02243	0.70843	1						
ARS1-B10-02243-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	ASP-A-009	TH-228	0.705375	0.124906	0.151227	0.054328	0.019636	pCi	g	ARS1-B10-02243	0.70802	1						
ARS1-B10-02243-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	ASP-A-009	TH-230	3.92522	0.332088	0.579087	0.029901	0.005044	pCi	g	ARS1-B10-02243	0.51087	1						
ARS1-B10-02243-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	ASP-A-009	TH-230	0.851004	0.132669	0.167868	0.042686	0.014166	pCi	g	ARS1-B10-02243	0.7123	1						
ARS1-B10-02243-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	ASP-A-009	TH-230	3.042331	0.296617	0.472423	0.056742	0.018226	pCi	g	ARS1-B10-02243	0.48997	1						
ARS1-B10-02243-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	ASP-A-009	TH-230	11.23314	0.596142	1.482761	0.071415	0.024576	pCi	g	ARS1-B10-02243	0.44953	1						
ARS1-B10-02243-06	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	ASP-A-009	TH-230	0.910155	0.128828	0.169402	0.030591	0.008908	pCi	g	ARS1-B10-02243	0.78115	1						
ARS1-B10-02243-04	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	ASP-A-009	TH-230	11.12276	0.478774	1.427015	0.043164	0.014322	pCi	g	ARS1-B10-02243	0.68464	1						
ARS1-B10-02243-05	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	ASP-A-009	TH-230	2.496692	0.223389	0.375442	0.033488	0.009713	pCi	g	ARS1-B10-02243	0.69435	1						
ARS1-B10-02243-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	ASP-A-009	TH-230	2.534004	0.262302	0.403234	0.051595	0.016273	pCi	g	ARS1-B10-02243	0.5316	1						
ARS1-B10-02243-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	ASP-A-009	TH-230	4.600871	0.388742	0.678474	0.068548	0.022745	pCi	g	ARS1-B10-02243	0.46087	1						
ARS1-B10-02243-22	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	ASP-A-009	TH-230	0.634235	0.115972	0.139016	0.035416	0.010312	pCi	g	ARS1-B10-02243	0.67145	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02243-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	ASP-A-009	TH-230	1.945715	0.195568	0.305855	0.037366	0.011785	pCi	g	ARS1-B10-02243	0.72931	1						
ARS1-B10-02243-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	ASP-A-009	TH-230	1.477175	0.2076	0.273809	0.048935	0.014245	pCi	g	ARS1-B10-02243	0.48947	1						
ARS1-B10-02243-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	ASP-A-009	TH-230	0.919921	0.137476	0.176808	0.028697	0.00713	pCi	g	ARS1-B10-02243	0.66776	1						
ARS1-B10-02243-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	ASP-A-009	TH-230	2.760687	0.256484	0.420846	0.043079	0.013166	pCi	g	ARS1-B10-02243	0.6451	1						
ARS1-B10-02243-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	ASP-A-009	TH-230	3.217388	0.278286	0.478175	0.050192	0.016649	pCi	g	ARS1-B10-02243	0.57217	1						
ARS1-B10-02243-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	ASP-A-009	TH-230	0.909543	0.120042	0.16277	0.022146	0.005501	pCi	g	ARS1-B10-02243	0.91731	1						
ARS1-B10-02243-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	ASP-A-009	TH-230	1.351056	0.160623	0.229048	0.033592	0.010098	pCi	g	ARS1-B10-02243	0.7178	1						
ARS1-B10-02243-23	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	ASP-A-009	TH-230	1.145113	0.151018	0.204843	0.041266	0.01369	pCi	g	ARS1-B10-02243	0.70843	1						
ARS1-B10-02243-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	ASP-A-009	TH-230	1.349818	0.167554	0.233856	0.043151	0.014315	pCi	g	ARS1-B10-02243	0.70802	1						
ARS1-B10-02243-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	ASP-A-009	TH-232	3.563849	0.316064	0.53425	0.019774	0	pCi	g	ARS1-B10-02243	0.51087	1						
ARS1-B10-02243-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	ASP-A-009	TH-232	0.707515	0.120895	0.14808	0.040757	0.013216	pCi	g	ARS1-B10-02243	0.7123	1						
ARS1-B10-02243-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	ASP-A-009	TH-232	3.241623	0.305365	0.496732	0.043491	0.01162	pCi	g	ARS1-B10-02243	0.48997	1						
ARS1-B10-02243-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	ASP-A-009	TH-232	1.445951	0.215295	0.277295	0.069921	0.023851	pCi	g	ARS1-B10-02243	0.44953	1						
ARS1-B10-02243-06	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	ASP-A-009	TH-232	0.446587	0.091392	0.10614	0.040862	0.014056	pCi	g	ARS1-B10-02243	0.78115	1						
ARS1-B10-02243-04	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	ASP-A-009	TH-232	0.906404	0.137245	0.175605	0.039248	0.012379	pCi	g	ARS1-B10-02243	0.68464	1						
ARS1-B10-02243-05	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	ASP-A-009	TH-232	0.46864	0.096908	0.112246	0.027875	0.00692	pCi	g	ARS1-B10-02243	0.69435	1						
ARS1-B10-02243-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	ASP-A-009	TH-232	2.27603	0.247915	0.370314	0.037764	0.009376	pCi	g	ARS1-B10-02243	0.5316	1						
ARS1-B10-02243-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	ASP-A-009	TH-232	3.669086	0.346753	0.562924	0.062329	0.019658	pCi	g	ARS1-B10-02243	0.46087	1						
ARS1-B10-02243-22	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	ASP-A-009	TH-232	0.515546	0.105661	0.122665	0.047308	0.016273	pCi	g	ARS1-B10-02243	0.67145	1						
ARS1-B10-02243-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	ASP-A-009	TH-232	1.054692	0.143926	0.192259	0.032974	0.009603	pCi	g	ARS1-B10-02243	0.72931	1						
ARS1-B10-02243-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	ASP-A-009	TH-232	1.467248	0.207044	0.272606	0.055227	0.017412	pCi	g	ARS1-B10-02243	0.48947	1						
ARS1-B10-02243-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	ASP-A-009	TH-232	1.635126	0.183055	0.269376	0.032087	0.008839	pCi	g	ARS1-B10-02243	0.66776	1						
ARS1-B10-02243-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	ASP-A-009	TH-232	1.644661	0.197907	0.280497	0.040557	0.011922	pCi	g	ARS1-B10-02243	0.6451	1						
ARS1-B10-02243-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	ASP-A-009	TH-232	1.560895	0.193399	0.270171	0.033476	0.008308	pCi	g	ARS1-B10-02243	0.57217	1						
ARS1-B10-02243-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	ASP-A-009	TH-232	0.643819	0.100744	0.127295	0.011121	0	pCi	g	ARS1-B10-02243	0.91731	1						
ARS1-B10-02243-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	ASP-A-009	TH-232	0.739878	0.118672	0.148591	0.026557	0.006594	pCi	g	ARS1-B10-02243	0.7178	1						
ARS1-B10-02243-23	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	ASP-A-009	TH-232	0.713102	0.119472	0.147315	0.041184	0.013663	pCi	g	ARS1-B10-02243	0.70843	1						
ARS1-B10-02243-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	ASP-A-009	TH-232	0.746045	0.12496	0.154094	0.043065	0.014287	pCi	g	ARS1-B10-02243	0.70802	1						
ARS1-B10-02254-15	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	ASP-A-009	TH-228	1.60852	0.198372	0.277751	0.073458	0.02835	pCi	g	ARS1-B10-02254	0.57697	1						
ARS1-B10-02254-16	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	ASP-A-009	TH-228	1.736488	0.218628	0.303059	0.068782	0.024861	pCi	g	ARS1-B10-02254	0.49825	1						
ARS1-B10-02254-17	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	ASP-A-009	TH-228	0.652233	0.117621	0.141594	0.06173	0.023819	pCi	g	ARS1-B10-02254	0.76726	1						
ARS1-B10-02254-14	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	ASP-A-009	TH-228	0.872364	0.130425	0.167711	0.063532	0.025254	pCi	g	ARS1-B10-02254	0.69942	1						
ARS1-B10-02254-05	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	ASP-A-009	TH-228	3.663847	0.413363	0.605767	0.15872	0.063461	pCi	g	ARS1-B10-02254	0.32733	1						
ARS1-B10-02254-06	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	ASP-A-009	TH-228	1.466326	0.170249	0.245748	0.064774	0.025639	pCi	g	ARS1-B10-02254	0.67502	1						
ARS1-B10-02254-07	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	ASP-A-009	TH-228	0.661186	0.107547	0.133986	0.054641	0.0215	pCi	g	ARS1-B10-02254	0.86837	1						
ARS1-B10-02254-04	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	ASP-A-009	TH-228	1.15427	0.152919	0.206993	0.064481	0.025374	pCi	g	ARS1-B10-02254	0.75055	1						
ARS1-B10-02254-11	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	ASP-A-009	TH-228	1.921286	0.221521	0.320923	0.067084	0.024692	pCi	g	ARS1-B10-02254	0.58836	1						
ARS1-B10-02254-12	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	ASP-A-009	TH-228	0.567875	0.119335	0.137665	0.068171	0.025828	pCi	g	ARS1-B10-02254	0.63355	1						
ARS1-B10-02254-09	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	ASP-A-009	TH-228	1.119926	0.132612	0.189491	0.040184	0.014649	pCi	g	ARS1-B10-02254	0.89819	1						
ARS1-B10-02254-10	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	ASP-A-009	TH-228	1.409656	0.195248	0.25913	0.08594	0.033838	pCi	g	ARS1-B10-02254	0.51456	1						
ARS1-B10-02254-13	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	ASP-A-009	TH-228	0.8264	0.132207	0.165694	0.073007	0.029573	pCi	g	ARS1-B10-02254	0.77696	1						
ARS1-B10-02254-08	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	ASP-A-009	TH-228	0.582619	0.104306	0.125849	0.04971	0.018565	pCi	g	ARS1-B10-02254	0.70539	1						
ARS1-B10-02254-20	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	ASP-A-009	TH-228	2.522324	0.275737	0.411052	0.097121	0.038219	pCi	g	ARS1-B10-02254	0.47978	1						
ARS1-B10-02254-21	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	ASP-A-009	TH-228	1.413351	0.191066	0.256291	0.0867	0.034665	pCi	g	ARS1-B10-02254	0.5863	1						
ARS1-B10-02254-22	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	ASP-A-009	TH-228	0.548377	0.095091	0.115909	0.052102	0.020624	pCi	g	ARS1-B10-02254	0.81958	1						
ARS1-B10-02254-19	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	ASP-A-009	TH-228	1.002788	0.141111	0.186014	0.055428	0.020929	pCi	g	ARS1-B10-02254	0.7461	1						
ARS1-B10-02254-18	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	ASP-A-009	TH-228	0.863078	0.130128	0.166776	0.055528	0.021102	pCi	g	ARS1-B10-02254	0.68319	1						
ARS1-B10-02254-23	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	ASP-A-009	TH-228	0.464512	0.075337	0.093955	0.038177	0.015022	pCi	g	ARS1-B10-02254	1.24707	1						
ARS1-B10-02254-15	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	ASP-A-009	TH-230	5.957272	0.369495	0.809274	0.038659	0.011257	pCi	g	ARS1-B10-02254	0.57697	1			6.77	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-16	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	ASP-A-009	TH-230	9.756629	0.504446	1.282559	0.054578	0.018106	pCi	g	ARS1-B10-02254	0.49825	1			7.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-17	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	ASP-A-009	TH-230	1.20139	0.152594	0.210637	0.034926	0.010674	pCi	g	ARS1-B10-02254	0.76726	1			3.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-14	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	ASP-A-009	TH-230	1.802642	0.179362	0.282201	0.029882	0.008667	pCi	g	ARS1-B10-02254	0.69942	1			4.53	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-05	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	ASP-A-009	TH-230	4.395584	0.437252	0.688054	0.060877	0.015123	pCi	g	ARS1-B10-02254	0.32733	1			5.69	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-06	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	ASP-A-009	TH-230	1.930584	0.189133	0.300358	0.036353	0.011677	pCi	g	ARS1-B10-02254	0.67502	1			4.69	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-07	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	ASP-A-009	TH-230	0.833977	0.116077	0.153732	0.035968	0.012377	pCi	g	ARS1-B10-02254	0.86837	1			2.14	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-04	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	ASP-A-009	TH-230	1.518659	0.168936	0.249456	0.026294	0.006533	pCi	g	ARS1-B10-02254	0.75055	1			3.99	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-11	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	ASP-A-009	TH-230	4.141453	0.316898	0.592421	0.046194	0.01457	pCi	g	ARS1-B10-02254	0.58836	1			6.16	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-12	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	ASP-A-009	TH-230	0.864488	0.140579	0.175154	0.043099	0.013593	pCi	g	ARS1-B10-02254	0.63355	1			2.10	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-09	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	ASP-A-009	TH-230	2.410257	0.189703	0.347629	0.03119	0.010351	pCi	g	ARS1-B10-02254	0.89819	1			5.43	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-10	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	ASP-A-009	TH-230	1.903124	0.218459	0.317223	0.044129	0.013266	pCi	g	ARS1-B10-02254	0.51456	1			4.39	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-13	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	ASP-A-009	TH-230	1.016119	0.139577	0.185913	0.039699	0.013173	pCi	g	ARS1-B10-02254	0.77696	1			2.71	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-08	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	ASP-A-009	TH-230	1.076027	0.136026	0.188191	0.018293	0.003086	pCi	g	ARS1-B10-02254	0.70539	1			2.97	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-20	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	ASP-A-009	TH-230	3.449666	0.312291	0.520917	0.039585	0.009835	pCi	g	ARS1-B10-02254	0.47978	1			5.67	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-21	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	ASP-A-009	TH-230	1.77451	0.205343	0.296922	0.033237	0.008257	pCi	g	ARS1-B10-02254	0.5863	1			4.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-22	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	ASP-A-009	TH-230	0.711901	0.103309	0.134446	0.029228	0.009388	pCi	g	ARS1-B10-02254	0.81958	1	J		1.62	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02254-19	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	ASP-A-009	TH-230	1.304883	0.155958	0.221799	0.031321	0.009118	pCi	g	ARS1-B10-02254	0.7461	1			3.54	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02254-18	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	ASP-A-009	TH-230	0.760167	0.118625	0.150043	0.038171	0.012661	pCi	g	ARS1-B10-02254	0.68319	1	J		1.78	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02254-23	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	ASP-A-009	TH-230	0.565582	0.079902	0.105152	0.025118	0.008644	pCi	g	ARS1-B10-02254	1.24707	1	J		0.89	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-02254-15	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	ASP-A-009	TH-232	0.872596	0.142757	0.177487	0.051638	0.017763	pCi	g	ARS1-B10-02254	0.57697	1						
ARS1-B10-02254-16	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	ASP-A-009	TH-232	1.470751	0.196662	0.265091	0.054469	0.01807	pCi	g	ARS1-B10-02254	0.49825	1						
ARS1-B10-02254-17	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	ASP-A-009	TH-232	0.691971	0.115863	0.142894	0.032882	0.009666	pCi	g	ARS1-B10-02254	0.76726	1						
ARS1-B10-02254-14	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	ASP-A-009	TH-232	0.769391	0.117099	0.149529	0.024873	0.006175	pCi	g	ARS1-B10-02254	0.69942	1						
ARS1-B10-02254-05	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	ASP-A-009	TH-232	4.300957	0.43172	0.675715	0.03057	0	pCi	g	ARS1-B10-02254	0.32733	1						
ARS1-B10-02254-06	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	ASP-A-009	TH-232	1.344088	0.157476	0.226247	0.027863	0.007445	pCi	g	ARS1-B10-02254	0.67502	1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02254-07	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	ASP-A-009	TH-232	0.424388	0.08329	0.097816	0.035215	0.012012	pCi	g	ARS1-B10-02254	0.86837	1						
ARS1-B10-02254-04	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	ASP-A-009	TH-232	1.000147	0.137153	0.182818	0.0294	0.008099	pCi	g	ARS1-B10-02254	0.75055	1						
ARS1-B10-02254-11	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	ASP-A-009	TH-232	1.591093	0.196441	0.274897	0.040765	0.011872	pCi	g	ARS1-B10-02254	0.58836	1						
ARS1-B10-02254-12	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	ASP-A-009	TH-232	0.456687	0.101823	0.11582	0.031545	0.007833	pCi	g	ARS1-B10-02254	0.63355	1						
ARS1-B10-02254-09	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	ASP-A-009	TH-232	1.12024	0.129439	0.187312	0.029781	0.009657	pCi	g	ARS1-B10-02254	0.89819	1						
ARS1-B10-02254-10	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	ASP-A-009	TH-232	1.209432	0.173828	0.227118	0.034887	0.008663	pCi	g	ARS1-B10-02254	0.51456	1						
ARS1-B10-02254-13	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	ASP-A-009	TH-232	0.950625	0.134698	0.177042	0.036097	0.011385	pCi	g	ARS1-B10-02254	0.77696	1						
ARS1-B10-02254-08	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	ASP-A-009	TH-232	0.600035	0.101439	0.124696	0.012097	0	pCi	g	ARS1-B10-02254	0.70539	1						
ARS1-B10-02254-20	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	ASP-A-009	TH-232	2.302077	0.255091	0.37747	0.044261	0.012193	pCi	g	ARS1-B10-02254	0.47978	1						
ARS1-B10-02254-21	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	ASP-A-009	TH-232	1.255084	0.172323	0.229576	0.016691	0	pCi	g	ARS1-B10-02254	0.5863	1						
ARS1-B10-02254-22	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	ASP-A-009	TH-232	0.480372	0.084581	0.10259	0.022402	0.005985	pCi	g	ARS1-B10-02254	0.81958	1						
ARS1-B10-02254-19	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	ASP-A-009	TH-232	0.84507	0.12578	0.162025	0.035348	0.011145	pCi	g	ARS1-B10-02254	0.7461	1						
ARS1-B10-02254-18	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	ASP-A-009	TH-232	0.678362	0.111294	0.138233	0.025458	0.006318	pCi	g	ARS1-B10-02254	0.68319	1						
ARS1-B10-02254-23	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	ASP-A-009	TH-232	0.304351	0.05892	0.06946	0.024592	0.008389	pCi	g	ARS1-B10-02254	1.24707	1						
ARS1-B10-02260-05	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	ASP-A-009	TH-228	0.803321	0.15459	0.18255	0.0817	0.030954	pCi	g	ARS1-B10-02260	0.54895	1						
ARS1-B10-02260-04	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	ASP-A-009	TH-228	0.826805	0.141996	0.173633	0.062753	0.023098	pCi	g	ARS1-B10-02260	0.66127	1						
ARS1-B10-02260-07	TLS-SB-IA1-13 (7.0-8.0)03101C	ARS1-10-00560-005	ASP-A-009	TH-228	1.618918	0.24124	0.310613	0.117162	0.046573	pCi	g	ARS1-B10-02260	0.43472	1						
ARS1-B10-02260-08	TLS-SB-IA1-21 (0.9-1.9)03101C	ARS1-10-00560-013	ASP-A-009	TH-228	1.063415	0.15144	0.198627	0.064159	0.024761	pCi	g	ARS1-B10-02260	0.70566	1						
ARS1-B10-02260-13	TLS-SB-IA1-8 (24.8-25.8)03101C	ARS1-10-00560-048	ASP-A-009	TH-228	0.581559	0.095498	0.118576	0.048944	0.01926	pCi	g	ARS1-B10-02260	1.00119	1						
ARS1-B10-02260-12	TLS-SB-IA1-8 (5.7-6.7)03101C	ARS1-10-00560-047	ASP-A-009	TH-228	1.984608	0.280819	0.369314	0.110878	0.041866	pCi	g	ARS1-B10-02260	0.39736	1						
ARS1-B10-02260-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	ASP-A-009	TH-228	1.144728	0.237807	0.275125	0.141272	0.054511	pCi	g	ARS1-B10-02260	0.35609	1						
ARS1-B10-02260-09	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	ASP-A-009	TH-228	0.71682	0.131521	0.157491	0.059125	0.02137	pCi	g	ARS1-B10-02260	0.66033	1						
ARS1-B10-02260-11	TLS-SS-IA5-B03 (0.7-1.2)03101C	ARS1-10-00560-026	ASP-A-009	TH-228	1.38039	0.203443	0.263102	0.084996	0.032301	pCi	g	ARS1-B10-02260	0.51054	1						
ARS1-B10-02260-21	TLS-SB-IA3-D02 (1.7-2.7)03161C	ARS1-10-00591-008	ASP-A-009	TH-228	1.011916	0.161524	0.202601	0.072037	0.027293	pCi	g	ARS1-B10-02260	0.57244	1						
ARS1-B10-02260-23	TLS-SB-IA3-D02 (10.0-11.0)03161C	ARS1-10-00591-010	ASP-A-009	TH-228	0.7232	0.137522	0.162949	0.082695	0.032872	pCi	g	ARS1-B10-02260	0.62627	1						
ARS1-B10-02260-22	TLS-SB-IA3-D02 (2.7-3.7)03161C	ARS1-10-00591-009	ASP-A-009	TH-228	0.828627	0.145918	0.176979	0.087484	0.035438	pCi	g	ARS1-B10-02260	0.66459	1						
ARS1-B10-02260-16	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	ASP-A-009	TH-228	0.985558	0.138333	0.182549	0.061501	0.0242	pCi	g	ARS1-B10-02260	0.80968	1						
ARS1-B10-02260-17	TLS-SB-IA6-12 (16.0-17.0)03161C	ARS1-10-00591-004	ASP-A-009	TH-228	0.725028	0.111465	0.141785	0.046145	0.017233	pCi	g	ARS1-B10-02260	0.9173	1						
ARS1-B10-02260-18	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	ASP-A-009	TH-228	0.776778	0.139333	0.16801	0.062605	0.022823	pCi	g	ARS1-B10-02260	0.63828	1						
ARS1-B10-02260-19	TLS-SB-IA6-12 (17.0-18.0)03161OD	ARS1-10-00591-006	ASP-A-009	TH-228	0.721347	0.120596	0.148809	0.062915	0.024772	pCi	g	ARS1-B10-02260	0.7647	1						
ARS1-B10-02260-15	TLS-SB-IA6-12 (6.0-7.0)03161C	ARS1-10-00591-002	ASP-A-009	TH-228	0.701886	0.116884	0.144424	0.061806	0.024465	pCi	g	ARS1-B10-02260	0.81084	1						
ARS1-B10-02260-20	TLS-SS-IA3-D02 (0.2-0.7)03161C	ARS1-10-00591-007	ASP-A-009	TH-228	0.823326	0.132776	0.165925	0.055338	0.020369	pCi	g	ARS1-B10-02260	0.71788	1						
ARS1-B10-02260-14	TLS-SS-IA6-12 (1.0-1.5)03161C	ARS1-10-00591-001	ASP-A-009	TH-228	1.065427	0.159886	0.205292	0.079719	0.031874	pCi	g	ARS1-B10-02260	0.64438	1						
ARS1-B10-02260-05	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	ASP-A-009	TH-230	1.42414	0.193096	0.258674	0.04956	0.015631	pCi	g	ARS1-B10-02260	0.54895	1			4.29	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-04	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	ASP-A-009	TH-230	1.249982	0.16536	0.22398	0.041428	0.013067	pCi	g	ARS1-B10-02260	0.66127	1			4.16	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-07	TLS-SB-IA1-13 (7.0-8.0)03101C	ARS1-10-00560-005	ASP-A-009	TH-230	2.347062	0.275268	0.395271	0.053986	0.015658	pCi	g	ARS1-B10-02260	0.43472	1			5.17	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-08	TLS-SB-IA1-21 (0.9-1.9)03101C	ARS1-10-00560-013	ASP-A-009	TH-230	1.69329	0.182471	0.274186	0.033081	0.009633	pCi	g	ARS1-B10-02260	0.70566	1			5.01	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-13	TLS-SB-IA1-8 (24.8-25.8)03101C	ARS1-10-00560-048	ASP-A-009	TH-230	0.72344	0.100613	0.133296	0.019555	0.004858	pCi	g	ARS1-B10-02260	1.00119	1			2.98	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-12	TLS-SB-IA1-8 (5.7-6.7)03101C	ARS1-10-00560-047	ASP-A-009	TH-230	2.662641	0.311762	0.448058	0.06135	0.017859	pCi	g	ARS1-B10-02260	0.39736	1			5.27	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	ASP-A-009	TH-230	1.239314	0.233008	0.276999	0.078307	0.023933	pCi	g	ARS1-B10-02260	0.35609	1			3.38	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-09	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	ASP-A-009	TH-230	1.216507	0.164318	0.220494	0.045962	0.015248	pCi	g	ARS1-B10-02260	0.66033	1			4.07	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-11	TLS-SS-IA5-B03 (0.7-1.2)03101C	ARS1-10-00560-026	ASP-A-009	TH-230	0.872891	0.156003	0.188326	0.057207	0.018976	pCi	g	ARS1-B10-02260	0.51054	1			2.98	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-21	TLS-SB-IA3-D02 (1.7-2.7)03161C	ARS1-10-00591-008	ASP-A-009	TH-230	1.308684	0.176106	0.236707	0.044865	0.01415	pCi	g	ARS1-B10-02260	0.57244	1			4.19	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-23	TLS-SB-IA3-D02 (10.0-11.0)03161C	ARS1-10-00591-010	ASP-A-009	TH-230	0.839141	0.13898	0.17205	0.038318	0.011114	pCi	g	ARS1-B10-02260	0.62627	1			3.04	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-22	TLS-SB-IA3-D02 (2.7-3.7)03161C	ARS1-10-00591-009	ASP-A-009	TH-230	1.250191	0.168174	0.226082	0.046867	0.015551	pCi	g	ARS1-B10-02260	0.66459	1			4.12	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-16	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	ASP-A-009	TH-230	1.070836	0.138373	0.189465	0.039894	0.013729	pCi	g	ARS1-B10-02260	0.80968	1			3.94	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-17	TLS-SB-IA6-12 (16.0-17.0)03161C	ARS1-10-00591-004	ASP-A-009	TH-230	1.085957	0.130681	0.185213	0.016731	0.002822	pCi	g	ARS1-B10-02260	0.9173	1			4.09	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-18	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	ASP-A-009	TH-230	0.95445	0.148795	0.188274	0.047875	0.015888	pCi	g	ARS1-B10-02260	0.63828	1			3.38	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-19	TLS-SB-IA6-12 (17.0-18.0)03161OD	ARS1-10-00591-006	ASP-A-009	TH-230	0.733915	0.115477	0.145612	0.031829	0.009568	pCi	g	ARS1-B10-02260	0.7647	1			2.84	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-15	TLS-SB-IA6-12 (6.0-7.0)03161C	ARS1-10-00591-002	ASP-A-009	TH-230	0.996491	0.132055	0.178727	0.034183	0.010979	pCi	g	ARS1-B10-02260	0.81084	1			3.76	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-20	TLS-SS-IA3-D02 (0.2-0.7)03161C	ARS1-10-00591-007	ASP-A-009	TH-230	1.554727	0.175335	0.257003	0.037538	0.01184	pCi	g	ARS1-B10-02260	0.71788	1			4.80	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-14	TLS-SS-IA6-12 (1.0-1.5)03161C	ARS1-10-00591-001	ASP-A-009	TH-230	1.077173	0.152412	0.200445	0.030131	0.007485	pCi	g	ARS1-B10-02260	0.64438	1			3.78	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02260-05	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	ASP-A-009	TH-232	0.842576	0.148075	0.179712	0.036274	0.009007	pCi	g	ARS1-B10-02260	0.54895	1						
ARS1-B10-02260-04	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	ASP-A-009	TH-232	0.530435	0.107882	0.125493	0.036559	0.010647	pCi	g	ARS1-B10-02260	0.66127	1						
ARS1-B10-02260-07	TLS-SB-IA1-13 (7.0-8.0)03101C	ARS1-10-00560-005	ASP-A-009	TH-232	1.49112	0.219086	0.283685	0.044937	0.011157	pCi	g	ARS1-B10-02260	0.43472	1						
ARS1-B10-02260-08	TLS-SB-IA1-21 (0.9-1.9)03101C	ARS1-10-00560-013	ASP-A-009	TH-232	0.896199	0.133587	0.171981	0.044189	0.0152	pCi	g	ARS1-B10-02260	0.70566	1						
ARS1-B10-02260-13	TLS-SB-IA1-8 (24.8-25.8)03101C	ARS1-10-00560-048	ASP-A-009	TH-232	0.471444	0.081322	0.099297	0.021865	0.006023	pCi	g	ARS1-B10-02260	1.00119	1						
ARS1-B10-02260-12	TLS-SB-IA1-8 (5.7-6.7)03101C	ARS1-10-00560-047	ASP-A-009	TH-232	1.553103	0.238732	0.30369	0.069238	0.021829	pCi	g	ARS1-B10-02260	0.39736	1						
ARS1-B10-02260-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	ASP-A-009	TH-232	1.176795	0.226599	0.267537	0.073723	0.021671	pCi	g	ARS1-B10-02260	0.35609	1						
ARS1-B10-02260-09	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	ASP-A-009	TH-232	0.690043	0.124205	0.149607	0.04587	0.015217	pCi	g	ARS1-B10-02260	0.66033	1						
ARS1-B10-02260-11	TLS-SS-IA5-B03 (0.7-1.2)03101C	ARS1-10-00560-026	ASP-A-009	TH-232	1.096646	0.173206	0.2181	0.038154	0.009469	pCi	g	ARS1-B10-02260	0.51054	1						
ARS1-B10-02260-21	TLS-SB-IA3-D02 (1.7-2.7)03161C	ARS1-10-00591-008	ASP-A-009	TH-232	0.919652	0.147123	0.18439	0.032838	0.008153	pCi	g	ARS1-B10-02260	0.57244	1						
ARS1-B10-02260-23	TLS-SB-IA3-D02 (10.0-11.0)03161C	ARS1-10-00591-010	ASP-A-009	TH-232	0.602612	0.117501	0.138243	0.031895	0.007919	pCi	g	ARS1-B10-02260	0.62627	1						
ARS1-B10-02260-22	TLS-SB-IA3-D02 (2.7-3.7)03161C	ARS1-10-00591-009	ASP-A-009	TH-232	0.825125	0.136599	0.169128	0.042614	0.013441	pCi	g	ARS1-B10-02260	0.66459	1						
ARS1-B10-02260-16	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	ASP-A-009	TH-232	1.565179	0.166709	0.252144	0.03906	0.013324	pCi	g	ARS1-B10-02260	0.80968	1						
ARS1-B10-02260-17	TLS-SB-IA6-12 (16.0-17.0)03161C	ARS1-10-00591-004	ASP-A-009	TH-232	0.93164	0.120879	0.165198	0.011064	0	pCi	g	ARS1-B10-02260	0.9173	1						
ARS1-B10-02260-18	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	ASP-A-009	TH-232	0.731294	0.13026	0.157415	0.045712	0.014823	pCi	g	ARS1-B10-02260	0.63828	1						
ARS1-B10-02260-19	TLS-SB-IA6-12 (17.0-18.0)03161OD	ARS1-10-00591-006	ASP-A-009	TH-232	0.550543	0.099706	0.119869	0.025163	0.006248	pCi	g	ARS1-B10-02260	0.7647	1						
ARS1-B10-02260-15	TLS-SB-IA6-12 (6.0-7.0)03161C	ARS1-10-00591-002	ASP-A-009	TH-232	0.492278	0.092643	0.110103	0.0262	0.007	pCi	g	ARS1-B10-02260	0.81084	1						
ARS1-B10-02260-20	TLS-SS-IA3-D02 (0.2-0.7)03161C	ARS1-10-00591-007	ASP-A-009	TH-232	0.730417	0.12022	0.149151	0.033126	0.009648	pCi	g	ARS1-B10-02260	0.71788	1						
ARS1-B10-02260-14	TLS-SS-IA6-12 (1.0-1.5)03161C	ARS1-10-00591-001	ASP-A-009	TH-232	2.198915	0.217171	0.343209	0.01513	0	pCi	g	ARS1-B10-02260	0.64438	1						
ARS1-B10-02286-19	TLS-SB-IA1-12 (11.3-12.0)03161C	ARS1-10-00591-026	ASP-A-009	TH-228	2.929858	0.282683	0.453099	0.068668	0.024819	pCi	g	ARS1-B10-02286	0.5553	1						
ARS1-B10-02286-20	TLS-SB-IA1-12 (16.3-17.3)03161C	ARS1-10-00591-027	ASP-A-009	TH-228	0.699945	0.172856	0.192447	0.118752	0.045821	pCi	g	ARS1-B10-02286	0.41721	1						
ARS1-B10-02286-16	TLS-SB-IA1-12 (2.5-3.5)03161C	ARS1-10-00591-023	ASP-A-009	TH-228	1.145826	0.162899	0.213809	0.081086	0.032846	pCi	g	ARS1-B10-02286	0.72982	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02286-17	TLS-SB-IA1-12 (6.5-7.5)031610	ARS1-10-00591-024	ASP-A-009	TH-228	0.994926	0.160279	0.200372	0.083453	0.033173	pCi	g	ARS1-B10-02286	0.62074	1						
ARS1-B10-02286-18	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	ASP-A-009	TH-228	1.153927	0.158035	0.210773	0.064566	0.024919	pCi	g	ARS1-B10-02286	0.70027	1						
ARS1-B10-02286-13	TLS-SB-IA1-5 (14.6-15.6)031610	ARS1-10-00591-020	ASP-A-009	TH-228	3.164344	0.492882	0.623856	0.241385	0.095043	pCi	g	ARS1-B10-02286	0.19822	1						
ARS1-B10-02286-14	TLS-SB-IA1-5 (24.0-25.0)031610	ARS1-10-00591-021	ASP-A-009	TH-228	0.759908	0.126022	0.155938	0.053912	0.019844	pCi	g	ARS1-B10-02286	0.7267	1						
ARS1-B10-02286-12	TLS-SB-IA1-5 (7.0-8.0)031610	ARS1-10-00591-019	ASP-A-009	TH-228	2.152129	0.28874	0.388621	0.098659	0.035967	pCi	g	ARS1-B10-02286	0.38919	1						
ARS1-B10-02286-09	TLS-SB-IA3-D01 (10.4-11.4)03161	ARS1-10-00591-016	ASP-A-009	TH-228	0.759341	0.130751	0.159745	0.069873	0.027494	pCi	g	ARS1-B10-02286	0.71121	1						
ARS1-B10-02286-06	TLS-SB-IA3-D01 (4.0-5.0)03161	ARS1-10-00591-013	ASP-A-009	TH-228	1.989395	0.257019	0.351951	0.105884	0.041667	pCi	g	ARS1-B10-02286	0.47459	1						
ARS1-B10-02286-07	TLS-SB-IA3-D01 (8.0-9.0)03161	ARS1-10-00591-014	ASP-A-009	TH-228	1.090889	0.171699	0.21648	0.089314	0.03571	pCi	g	ARS1-B10-02286	0.60727	1						
ARS1-B10-02286-08	TLS-SB-IA3-D01 (9.0-10.0)03161	ARS1-10-00591-015	ASP-A-009	TH-228	0.851255	0.134684	0.169484	0.068054	0.026938	pCi	g	ARS1-B10-02286	0.74097	1						
ARS1-B10-02286-04	TLS-SB-IA3-D02 (11.0-12.0)03161	ARS1-10-00591-011	ASP-A-009	TH-228	1.009658	0.13938	0.18525	0.054777	0.020817	pCi	g	ARS1-B10-02286	0.78082	1						
ARS1-B10-02286-22	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	ASP-A-009	TH-228	0.7389	0.117352	0.147468	0.0516	0.019483	pCi	g	ARS1-B10-02286	0.84088	1						
ARS1-B10-02286-23	TLS-SB-IA6-13 (23.0-24.0)031610	ARS1-10-00591-030	ASP-A-009	TH-228	0.493097	0.100714	0.117026	0.062389	0.024551	pCi	g	ARS1-B10-02286	0.79883	1						
ARS1-B10-02286-24	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	ASP-A-009	TH-228	0.850822	0.133914	0.16884	0.069659	0.027852	pCi	g	ARS1-B10-02286	0.75443	1						
ARS1-B10-02286-15	TLS-SS-IA1-12 (2.0-2.5)03161	ARS1-10-00591-022	ASP-A-009	TH-228	0.990201	0.140703	0.184715	0.05632	0.021338	pCi	g	ARS1-B10-02286	0.75233	1						
ARS1-B10-02286-10	TLS-SS-IA1-5 (1.0-1.5)03161	ARS1-10-00591-017	ASP-A-009	TH-228	0.566669	0.095739	0.117714	0.043264	0.016157	pCi	g	ARS1-B10-02286	0.93284	1						
ARS1-B10-02286-05	TLS-SS-IA3-D01 (2.1-2.6)03161	ARS1-10-00591-012	ASP-A-009	TH-228	0.884392	0.141464	0.177305	0.062613	0.023642	pCi	g	ARS1-B10-02286	0.69003	1						
ARS1-B10-02286-21	TLS-SS-IA6-13 (12.0-12.5)03161	ARS1-10-00591-028	ASP-A-009	TH-228	0.963069	0.146774	0.187325	0.063258	0.02404	pCi	g	ARS1-B10-02286	0.68063	1						
ARS1-B10-02286-19	TLS-SB-IA1-12 (11.3-12.0)031610	ARS1-10-00591-026	ASP-A-009	TH-230	4.183544	0.327889	0.602634	0.05365	0.017799	pCi	g	ARS1-B10-02286	0.5553	1			6.57	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-20	TLS-SB-IA1-12 (16.3-17.3)031610	ARS1-10-00591-027	ASP-A-009	TH-230	1.21768	0.21207	0.258133	0.066157	0.020219	pCi	g	ARS1-B10-02286	0.41721	1			3.81	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-16	TLS-SB-IA1-12 (2.5-3.5)031610	ARS1-10-00591-023	ASP-A-009	TH-230	2.010438	0.204731	0.317735	0.043415	0.014406	pCi	g	ARS1-B10-02286	0.72982	1			5.58	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-17	TLS-SB-IA1-12 (6.5-7.5)031610	ARS1-10-00591-024	ASP-A-009	TH-230	82.91592	1.381191	10.11599	0.038648	0.011209	pCi	g	ARS1-B10-02286	0.62074	1			8.18	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-18	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	ASP-A-009	TH-230	74.00649	1.210802	9.026041	0.033457	0.009742	pCi	g	ARS1-B10-02286	0.70027	1			8.18	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-13	TLS-SB-IA1-5 (14.6-15.6)031610	ARS1-10-00591-020	ASP-A-009	TH-230	9.59529	0.814812	1.417323	0.12205	0.03669	pCi	g	ARS1-B10-02286	0.19822	1			6.62	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-14	TLS-SB-IA1-5 (24.0-25.0)031610	ARS1-10-00591-021	ASP-A-009	TH-230	0.851653	0.12838	0.164548	0.036554	0.011529	pCi	g	ARS1-B10-02286	0.7267	1			3.67	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-12	TLS-SB-IA1-5 (7.0-8.0)031610	ARS1-10-00591-019	ASP-A-009	TH-230	19.0632	0.828309	2.448357	0.075404	0.025024	pCi	g	ARS1-B10-02286	0.38919	1			7.70	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-09	TLS-SB-IA3-D01 (10.4-11.4)03161	ARS1-10-00591-016	ASP-A-009	TH-230	1.264579	0.160184	0.221401	0.045296	0.015587	pCi	g	ARS1-B10-02286	0.71121	1			4.60	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-06	TLS-SB-IA3-D01 (4.0-5.0)03161	ARS1-10-00591-013	ASP-A-009	TH-230	2.22909	0.260301	0.374617	0.042521	0.010564	pCi	g	ARS1-B10-02286	0.47459	1			5.33	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-07	TLS-SB-IA3-D01 (8.0-9.0)03161	ARS1-10-00591-014	ASP-A-009	TH-230	1.227314	0.17214	0.227234	0.033735	0.00838	pCi	g	ARS1-B10-02286	0.60727	1			4.34	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-08	TLS-SB-IA3-D01 (9.0-10.0)03161	ARS1-10-00591-015	ASP-A-009	TH-230	1.488639	0.169091	0.246905	0.037614	0.012082	pCi	g	ARS1-B10-02286	0.74097	1			5.04	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-04	TLS-SB-IA3-D02 (11.0-12.0)03161	ARS1-10-00591-011	ASP-A-009	TH-230	1.094652	0.139906	0.192554	0.037066	0.012295	pCi	g	ARS1-B10-02286	0.78082	1			4.39	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-22	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	ASP-A-009	TH-230	0.768032	0.114664	0.147527	0.028688	0.008351	pCi	g	ARS1-B10-02286	0.84088	1			3.51	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-23	TLS-SB-IA6-13 (23.0-24.0)031610	ARS1-10-00591-030	ASP-A-009	TH-230	1.379678	0.157163	0.22914	0.025047	0.006223	pCi	g	ARS1-B10-02286	0.79883	1			4.94	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-24	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	ASP-A-009	TH-230	1.662277	0.176771	0.267601	0.026304	0.006534	pCi	g	ARS1-B10-02286	0.75443	1			5.30	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-15	TLS-SS-IA1-12 (2.0-2.5)03161	ARS1-10-00591-022	ASP-A-009	TH-230	1.519132	0.167468	0.248507	0.035057	0.011057	pCi	g	ARS1-B10-02286	0.75233	1			5.13	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-10	TLS-SS-IA1-5 (1.0-1.5)03161	ARS1-10-00591-017	ASP-A-009	TH-230	0.87198	0.11336	0.154781	0.015677	0.002645	pCi	g	ARS1-B10-02286	0.93284	1			3.99	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-05	TLS-SS-IA3-D01 (2.1-2.6)03161	ARS1-10-00591-012	ASP-A-009	TH-230	1.34591	0.167058	0.233172	0.03483	0.010139	pCi	g	ARS1-B10-02286	0.69003	1			4.72	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-21	TLS-SS-IA6-13 (12.0-12.5)03161	ARS1-10-00591-028	ASP-A-009	TH-230	1.117229	0.15196	0.203285	0.042783	0.014192	pCi	g	ARS1-B10-02286	0.68063	1			4.29	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02286-19	TLS-SB-IA1-12 (11.3-12.0)031610	ARS1-10-00591-026	ASP-A-009	TH-232	2.564605	0.256802	0.40252	0.053543	0.017763	pCi	g	ARS1-B10-02286	0.5553	1						
ARS1-B10-02286-20	TLS-SB-IA1-12 (16.3-17.3)031610	ARS1-10-00591-027	ASP-A-009	TH-232	0.555566	0.143839	0.15874	0.062284	0.018309	pCi	g	ARS1-B10-02286	0.41721	1						
ARS1-B10-02286-16	TLS-SB-IA1-12 (2.5-3.5)031610	ARS1-10-00591-023	ASP-A-009	TH-232	1.064227	0.149022	0.196854	0.039476	0.012451	pCi	g	ARS1-B10-02286	0.72982	1						
ARS1-B10-02286-17	TLS-SB-IA1-12 (6.5-7.5)031610	ARS1-10-00591-024	ASP-A-009	TH-232	1.023425	0.153583	0.197199	0.03217	0.007987	pCi	g	ARS1-B10-02286	0.62074	1						
ARS1-B10-02286-18	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	ASP-A-009	TH-232	1.072437	0.14675	0.195795	0.04469	0.015373	pCi	g	ARS1-B10-02286	0.70027	1						
ARS1-B10-02286-13	TLS-SB-IA1-5 (14.6-15.6)031610	ARS1-10-00591-020	ASP-A-009	TH-232	3.045705	0.458832	0.588242	0.096489	0.023958	pCi	g	ARS1-B10-02286	0.19822	1						
ARS1-B10-02286-14	TLS-SB-IA1-5 (24.0-25.0)031610	ARS1-10-00591-021	ASP-A-009	TH-232	0.447898	0.093149	0.107736	0.032258	0.009395	pCi	g	ARS1-B10-02286	0.7267	1						
ARS1-B10-02286-12	TLS-SB-IA1-5 (7.0-8.0)031610	ARS1-10-00591-019	ASP-A-009	TH-232	3.728945	0.366795	0.581079	0.071997	0.023346	pCi	g	ARS1-B10-02286	0.38919	1						
ARS1-B10-02286-09	TLS-SB-IA3-D01 (10.4-11.4)03161	ARS1-10-00591-016	ASP-A-009	TH-232	0.601312	0.111075	0.132738	0.044348	0.015127	pCi	g	ARS1-B10-02286	0.71121	1						
ARS1-B10-02286-06	TLS-SB-IA3-D01 (4.0-5.0)03161	ARS1-10-00591-013	ASP-A-009	TH-232	1.744816	0.230326	0.312282	0.047545	0.013097	pCi	g	ARS1-B10-02286	0.47459	1						
ARS1-B10-02286-07	TLS-SB-IA3-D01 (8.0-9.0)03161	ARS1-10-00591-014	ASP-A-009	TH-232	0.868392	0.144409	0.17852	0.016941	0	pCi	g	ARS1-B10-02286	0.60727	1						
ARS1-B10-02286-08	TLS-SB-IA3-D01 (9.0-10.0)03161	ARS1-10-00591-015	ASP-A-009	TH-232	0.686815	0.11469	0.141578	0.02883	0.007703	pCi	g	ARS1-B10-02286	0.74097	1						
ARS1-B10-02286-04	TLS-SB-IA3-D02 (11.0-12.0)03161	ARS1-10-00591-011	ASP-A-009	TH-232	0.777372	0.117362	0.150337	0.024721	0.006135	pCi	g	ARS1-B10-02286	0.78082	1						
ARS1-B10-02286-22	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	ASP-A-009	TH-232	0.560269	0.098223	0.119302	0.032377	0.010208	pCi	g	ARS1-B10-02286	0.84088	1						
ARS1-B10-02286-23	TLS-SB-IA6-13 (23.0-24.0)031610	ARS1-10-00591-030	ASP-A-009	TH-232	0.756034	0.116458	0.148027	0.028006	0.007715	pCi	g	ARS1-B10-02286	0.79883	1						
ARS1-B10-02286-24	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	ASP-A-009	TH-232	1.702897	0.178565	0.272478	0.013209	0	pCi	g	ARS1-B10-02286	0.75443	1						
ARS1-B10-02286-15	TLS-SS-IA1-12 (2.0-2.5)03161	ARS1-10-00591-022	ASP-A-009	TH-232	0.80547	0.121681	0.155831	0.025659	0.006371	pCi	g	ARS1-B10-02286	0.75233	1						
ARS1-B10-02286-10	TLS-SS-IA1-5 (1.0-1.5)03161	ARS1-10-00591-017	ASP-A-009	TH-232	0.513122	0.086839	0.10671	0.010367	0	pCi	g	ARS1-B10-02286	0.93284	1						
ARS1-B10-02286-05	TLS-SS-IA3-D01 (2.1-2.6)03161	ARS1-10-00591-012	ASP-A-009	TH-232	0.705315	0.121399	0.148339	0.039308	0.012393	pCi	g	ARS1-B10-02286	0.69003	1						
ARS1-B10-02286-21	TLS-SS-IA6-13 (12.0-12.5)03161	ARS1-10-00591-028	ASP-A-009	TH-232	0.789654	0.127115	0.158955	0.028534	0.007082	pCi	g	ARS1-B10-02286	0.68063	1						
ARS1-B10-02321-06	TLS-SB-IA1-B16 (11.0-12.0)03301	ARS1-10-00700-023	ASP-A-009	TH-228	3.157219	0.365279	0.528237	0.121432	0.046147	pCi	g	ARS1-B10-02321	0.34638	1						
ARS1-B10-02321-07	TLS-SB-IA1-B16 (24.0-25.0)03301	ARS1-10-00700-024	ASP-A-009	TH-228	1.261625	0.211856	0.261023	0.098059	0.037026	pCi	g	ARS1-B10-02321	0.41698	1						
ARS1-B10-02321-08	TLS-SB-IA1-B16 (25.4-26.4)03301	ARS1-10-00700-025	ASP-A-009	TH-228	0.662907	0.103434	0.130835	0.050641	0.019928	pCi	g	ARS1-B10-02321	0.9674	1						
ARS1-B10-02321-05	TLS-SB-IA1-B16 (9.0-10.0)03301	ARS1-10-00700-022	ASP-A-009	TH-228	1.032353	0.164536	0.206494	0.077258	0.02981	pCi	g	ARS1-B10-02321	0.61262	1						
ARS1-B10-02321-11	TLS-SB-IA1-B17 (15.0-16.0)03301	ARS1-10-00700-028	ASP-A-009	TH-228	1.47784	0.174562	0.249748	0.066124	0.026019	pCi	g	ARS1-B10-02321	0.72999	1						
ARS1-B10-02321-12	TLS-SB-IA1-B17 (18.5-19.5)03301	ARS1-10-00700-029	ASP-A-009	TH-228	1.314878	0.157412	0.22368	0.051418	0.019202	pCi	g	ARS1-B10-02321	0.76196	1						
ARS1-B10-02321-13	TLS-SB-IA1-B17 (25.6-26.6)03301	ARS1-10-00700-030	ASP-A-009	TH-228	0.639052	0.09717	0.124127	0.037401	0.013635	pCi	g	ARS1-B10-02321	0.96056	1						
ARS1-B10-02321-10	TLS-SB-IA1-B17 (6.4-7.4)03301	ARS1-10-00700-027	ASP-A-009	TH-228	0.513382	0.104263	0.121329	0.065418	0.025894	pCi	g	ARS1-B10-02321	0.72807	1						
ARS1-B10-02321-04	TLS-SS-IA1-B16 (1.0-1.5)03301	ARS1-10-00700-021	ASP-A-009	TH-228	0.561975	0.111324	0.130408	0.053712	0.019414	pCi	g	ARS1-B10-02321	0.71867	1						
ARS1-B10-02321-09	TLS-SS-IA1-B17 (1.2-1.7)03301	ARS1-10-00700-026	ASP-A-009	TH-228	0.786599	0.139923	0.169164	0.08098	0.032378	pCi	g	ARS1-B10-02321	0.64449	1						
ARS1-B10-02321-06	TLS-SB-IA1-B16 (11.0-12.0)03301	ARS1-10-00700-023	ASP-A-009	TH-230	3.332122	0.365186	0.543641	0.083203	0.027599	pCi	g	ARS1-B10-02321	0.34638	1			5.24	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-07	TLS-SB-IA1-B16 (24.0-25.0)03301	ARS1-10-00700-024	ASP-A-009	TH-230	9.893462	0.569191	1.32429	0.055231	0.016078	pCi	g	ARS1-B10-02321	0.41698	1			7.12	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-08	TLS-SB-IA1-B16 (25.4-26.4)03301	ARS1-10-00700-025	ASP-A-009	TH-230	0.868175	0.113094	0.154273	0.020597	0.005117	pCi	g	ARS1-B10-02321	0.9674	1			2.34	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-05	TLS-SB-IA1-B16 (9.0-10.0)03301	ARS1-10-00700-022	ASP-A-009	TH-230	1.782627	0.207576	0.299176	0.043605	0.013327	pCi	g	ARS1-B10-02321	0.61262	1			4.26	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-11	TLS-SB-IA1-B17 (15.0-16.0)03301	ARS1-10-00700-028	ASP-A-009	TH-230	145.9458	1.673479	17.71829	0.046266	0.016366	pCi	g	ARS1-B10-02321	0.72999	1			8.21	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-12	TLS-SB-IA1-B17 (18.5-19.5)03301	ARS1-10-00700-029	ASP-A-009	TH-230	41.89068	0.861666	5.135729	0.018869	0.003183	pCi	g	ARS1-B10-02321	0.76196	1			8.07	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-13	TLS-SB-IA1-B17 (25.6-26.6)03301	ARS1-10-00700-030	ASP-A-009	TH-230	1.018017	0.119075	0.171223	0.028948	0.009607	pCi	g	ARS1-B10-02321	0.96056	1			2.93	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02321-10	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	ASP-A-009	TH-230	0.848673	0.126296	0.162701	0.036619	0.011762	pCi	g	ARS1-B10-02321	0.72807	1			2.16	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-04	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	ASP-A-009	TH-230	1.456644	0.172693	0.246611	0.042515	0.014105	pCi	g	ARS1-B10-02321	0.71867	1			3.83	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-09	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	ASP-A-009	TH-230	0.91618	0.142578	0.180526	0.030979	0.007696	pCi	g	ARS1-B10-02321	0.64449	1			2.32	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02321-06	TLS-SB-IA1-B16 (11.0-12.0)03301C	ARS1-10-00700-023	ASP-A-009	TH-232	2.861836	0.337123	0.482998	0.055492	0.013772	pCi	g	ARS1-B10-02321	0.34638	1						
ARS1-B10-02321-07	TLS-SB-IA1-B16 (24.0-25.0)03301C	ARS1-10-00700-024	ASP-A-009	TH-232	1.155591	0.195631	0.24037	0.062333	0.019652	pCi	g	ARS1-B10-02321	0.41698	1						
ARS1-B10-02321-08	TLS-SB-IA1-B16 (25.4-26.4)03301C	ARS1-10-00700-025	ASP-A-009	TH-232	0.676989	0.099909	0.129138	0.02303	0.006344	pCi	g	ARS1-B10-02321	0.9674	1						
ARS1-B10-02321-05	TLS-SB-IA1-B16 (9.0-10.0)03301C	ARS1-10-00700-022	ASP-A-009	TH-232	0.784365	0.137902	0.167343	0.041052	0.012067	pCi	g	ARS1-B10-02321	0.61262	1						
ARS1-B10-02321-11	TLS-SB-IA1-B17 (15.0-16.0)03301C	ARS1-10-00700-028	ASP-A-009	TH-232	2.585667	0.223178	0.384015	0.042506	0.014499	pCi	g	ARS1-B10-02321	0.72999	1						
ARS1-B10-02321-12	TLS-SB-IA1-B17 (18.5-19.5)03301C	ARS1-10-00700-029	ASP-A-009	TH-232	1.380833	0.156283	0.228639	0.012478	0	pCi	g	ARS1-B10-02321	0.76196	1						
ARS1-B10-02321-13	TLS-SB-IA1-B17 (25.6-26.6)03301C	ARS1-10-00700-030	ASP-A-009	TH-232	0.635677	0.094172	0.121536	0.02764	0.008963	pCi	g	ARS1-B10-02321	0.96056	1						
ARS1-B10-02321-10	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	ASP-A-009	TH-232	0.478685	0.094594	0.110884	0.028067	0.007499	pCi	g	ARS1-B10-02321	0.72807	1						
ARS1-B10-02321-04	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	ASP-A-009	TH-232	0.600923	0.111551	0.13311	0.04243	0.014076	pCi	g	ARS1-B10-02321	0.71867	1						
ARS1-B10-02321-09	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	ASP-A-009	TH-232	1.809841	0.199778	0.296239	0.015556	0	pCi	g	ARS1-B10-02321	0.64449	1						
ARS1-B10-02583-06	TLS-SB-IA1-1 (21.8-22.8) 03081C	ARS1-10-00511-008	ASP-A-009	TH-228	1.154241	0.131977	0.192039	0.038661	0.014094	pCi	g	ARS1-B10-02583	1.01721	1						
ARS1-B10-02583-07	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	ASP-A-009	TH-228	0.75201	0.11336	0.145297	0.0539	0.021223	pCi	g	ARS1-B10-02583	0.89306	1						
ARS1-B10-02583-08	TLS-SB-IA1-3 (18.1-19.1)03151C	ARS1-10-00580-033	ASP-A-009	TH-228	0.902088	0.124428	0.165437	0.044747	0.01647	pCi	g	ARS1-B10-02583	0.91872	1						
ARS1-B10-02583-09	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	ASP-A-009	TH-228	0.801177	0.141922	0.171808	0.06962	0.026377	pCi	g	ARS1-B10-02583	0.63213	1						
ARS1-B10-02583-10	TLS-SB-IA1-5 (3.0-4.0)03161C	ARS1-10-00591-018	ASP-A-009	TH-228	3.487408	0.276742	0.504222	0.080012	0.032411	pCi	g	ARS1-B10-02583	0.75026	1						
ARS1-B10-02583-13	TLS-SB-IA1-6 (5.4-6.4)03171C	ARS1-10-00600-003	ASP-A-009	TH-228	1.905789	0.22928	0.324997	0.069036	0.024952	pCi	g	ARS1-B10-02583	0.5239	1						
ARS1-B10-02583-11	TLS-SB-IA1-DOE-B2 (3.0-4.0)03171C	ARS1-10-00600-016	ASP-A-009	TH-228	1.658094	0.202565	0.284942	0.082029	0.032607	pCi	g	ARS1-B10-02583	0.56346	1						
ARS1-B10-02583-12	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710D	ARS1-10-00600-017	ASP-A-009	TH-228	2.87162	0.38576	0.518908	0.154792	0.05974	pCi	g	ARS1-B10-02583	0.27611	1						
ARS1-B10-02583-14	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	ASP-A-009	TH-228	1.108109	0.324886	0.351407	0.255781	0.098695	pCi	g	ARS1-B10-02583	0.17289	1						
ARS1-B10-02583-15	TLS-SB-IA1-DOE-B1 (6.0-7.0)03181C	ARS1-10-00609-006	ASP-A-009	TH-228	1.742994	1.168856	1.187688	1.512906	0.574945	pCi	g	ARS1-B10-02583	0.02589	1						
ARS1-B10-02583-16	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810D	ARS1-10-00609-007	ASP-A-009	TH-228	1.087109	0.140846	0.192615	0.051174	0.019322	pCi	g	ARS1-B10-02583	0.86221	1						
ARS1-B10-02583-17	TLS-SB-IA1-DOE-B3 (5.3-6.3)03181C	ARS1-10-00609-013	ASP-A-009	TH-228	0.690403	0.10077	0.130833	0.046444	0.018276	pCi	g	ARS1-B10-02583	1.07199	1						
ARS1-B10-02583-18	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810D	ARS1-10-00609-014	ASP-A-009	TH-228	1.091372	0.173897	0.218263	0.091443	0.036562	pCi	g	ARS1-B10-02583	0.59774	1						
ARS1-B10-02583-19	TLS-SB-IA2-12 (5.4-6.4)03191C	ARS1-10-00610-018	ASP-A-009	TH-228	1.637661	0.216284	0.29318	0.092759	0.036717	pCi	g	ARS1-B10-02583	0.54341	1						
ARS1-B10-02583-20	TLS-SB-IA2-6 (9.8-10.8)03191C	ARS1-10-00610-024	ASP-A-009	TH-228	2.273577	0.245209	0.368286	0.085247	0.033543	pCi	g	ARS1-B10-02583	0.56103	1						
ARS1-B10-02583-22	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	ASP-A-009	TH-228	0.883886	0.189417	0.217464	0.100134	0.036504	pCi	g	ARS1-B10-02583	0.35485	1						
ARS1-B10-02583-21	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	ASP-A-009	TH-228	0.524965	0.105234	0.122882	0.055556	0.020748	pCi	g	ARS1-B10-02583	0.65699	1						
ARS1-B10-02583-23	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	ASP-A-009	TH-228	3.443468	0.471839	0.629156	0.205639	0.080969	pCi	g	ARS1-B10-02583	0.21892	1						
ARS1-B10-02583-06	TLS-SB-IA1-1 (21.8-22.8) 03081C	ARS1-10-00511-008	ASP-A-009	TH-230	315.2715	2.083063	38.16076	0.028872	0.009582	pCi	g	ARS1-B10-02583	1.01721	1						
ARS1-B10-02583-07	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	ASP-A-009	TH-230	49.88515	0.866613	6.091108	0.026629	0.008005	pCi	g	ARS1-B10-02583	0.89306	1						
ARS1-B10-02583-08	TLS-SB-IA1-3 (18.1-19.1)03151C	ARS1-10-00580-033	ASP-A-009	TH-230	59.22117	0.962035	7.221863	0.029857	0.009417	pCi	g	ARS1-B10-02583	0.91872	1						
ARS1-B10-02583-09	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	ASP-A-009	TH-230	1.168007	0.162262	0.215074	0.04265	0.013452	pCi	g	ARS1-B10-02583	0.63213	1						
ARS1-B10-02583-10	TLS-SB-IA1-5 (3.0-4.0)03161C	ARS1-10-00591-018	ASP-A-009	TH-230	1640.879	5.746145	198.4006	0.042199	0.014002	pCi	g	ARS1-B10-02583	0.75026	1						
ARS1-B10-02583-13	TLS-SB-IA1-6 (5.4-6.4)03171C	ARS1-10-00600-003	ASP-A-009	TH-230	29.12668	0.859816	3.623748	0.053179	0.017642	pCi	g	ARS1-B10-02583	0.5239	1						
ARS1-B10-02583-11	TLS-SB-IA1-DOE-B2 (3.0-4.0)03171C	ARS1-10-00600-016	ASP-A-009	TH-230	2.421148	0.232716	0.373876	0.037461	0.010865	pCi	g	ARS1-B10-02583	0.56346	1						
ARS1-B10-02583-12	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710D	ARS1-10-00600-017	ASP-A-009	TH-230	2.804755	0.363447	0.496995	0.079096	0.023031	pCi	g	ARS1-B10-02583	0.27611	1						
ARS1-B10-02583-14	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	ASP-A-009	TH-230	0.762868	0.248379	0.264939	0.140519	0.042947	pCi	g	ARS1-B10-02583	0.17289	1						
ARS1-B10-02583-18	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810D	ARS1-10-00609-014	ASP-A-009	TH-230	58.1953	1.18907	7.133315	0.03406	0.008461	pCi	g	ARS1-B10-02583	0.59774	1						
ARS1-B10-02583-15	TLS-SB-IA1-DOE-B1 (6.0-7.0)03181C	ARS1-10-00609-006	ASP-A-009	TH-230	2.813914	1.230852	1.276973	1.009778	0.334952	pCi	g	ARS1-B10-02583	0.02589	1						
ARS1-B10-02583-16	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810D	ARS1-10-00609-007	ASP-A-009	TH-230	4.251521	0.266064	0.578638	0.028077	0.008173	pCi	g	ARS1-B10-02583	0.86221	1						
ARS1-B10-02583-17	TLS-SB-IA1-DOE-B3 (5.3-6.3)03181C	ARS1-10-00609-013	ASP-A-009	TH-230	52.20312	0.827502	6.363329	0.018392	0.004569	pCi	g	ARS1-B10-02583	1.07199	1						
ARS1-B10-02583-19	TLS-SB-IA2-12 (5.4-6.4)03191C	ARS1-10-00610-018	ASP-A-009	TH-230	2.082341	0.231962	0.342265	0.050617	0.016258	pCi	g	ARS1-B10-02583	0.54341	1						
ARS1-B10-02583-20	TLS-SB-IA2-6 (9.8-10.8)03191C	ARS1-10-00610-024	ASP-A-009	TH-230	5.416726	0.362093	0.748132	0.054561	0.018776	pCi	g	ARS1-B10-02583	0.56103	1						
ARS1-B10-02583-22	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	ASP-A-009	TH-230	0.843094	0.177062	0.204289	0.075775	0.025147	pCi	g	ARS1-B10-02583	0.35485	1						
ARS1-B10-02583-21	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	ASP-A-009	TH-230	0.673521	0.112369	0.138755	0.019933	0.003362	pCi	g	ARS1-B10-02583	0.65699	1						
ARS1-B10-02583-23	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	ASP-A-009	TH-230	4.752143	0.528987	0.780833	0.103655	0.03116	pCi	g	ARS1-B10-02583	0.21892	1						
ARS1-B10-02583-06	TLS-SB-IA1-1 (21.8-22.8) 03081C	ARS1-10-00511-008	ASP-A-009	TH-232	0.601786	0.091538	0.116915	0.027567	0.008939	pCi	g	ARS1-B10-02583	1.01721	1						
ARS1-B10-02583-07	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	ASP-A-009	TH-232	0.517082	0.088357	0.108224	0.021052	0.005227	pCi	g	ARS1-B10-02583	0.89306	1						
ARS1-B10-02583-08	TLS-SB-IA1-3 (18.1-19.1)03151C	ARS1-10-00580-033	ASP-A-009	TH-232	0.699776	0.104863	0.134719	0.026348	0.007674	pCi	g	ARS1-B10-02583	0.91872	1						
ARS1-B10-02583-09	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	ASP-A-009	TH-232	0.808695	0.134539	0.166294	0.031217	0.007751	pCi	g	ARS1-B10-02583	0.63213	1						
ARS1-B10-02583-10	TLS-SB-IA1-5 (3.0-4.0)03161C	ARS1-10-00591-018	ASP-A-009	TH-232	1.61275	0.18054	0.265684	0.03837	0.012102	pCi	g	ARS1-B10-02583	0.75026	1						
ARS1-B10-02583-13	TLS-SB-IA1-6 (5.4-6.4)03171C	ARS1-10-00600-003	ASP-A-009	TH-232	1.437599	0.191922	0.258887	0.053073	0.017607	pCi	g	ARS1-B10-02583	0.5239	1						
ARS1-B10-02583-11	TLS-SB-IA1-DOE-B2 (3.0-4.0)03171C	ARS1-10-00600-016	ASP-A-009	TH-232	1.719202	0.195818	0.285515	0.031182	0.007742	pCi	g	ARS1-B10-02583	0.56346	1						
ARS1-B10-02583-12	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710D	ARS1-10-00600-017	ASP-A-009	TH-232	2.047457	0.312348	0.398492	0.105653	0.036342	pCi	g	ARS1-B10-02583	0.27611	1						
ARS1-B10-02583-14	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	ASP-A-009	TH-232	0.803769	0.253501	0.271477	0.132293	0.038888	pCi	g	ARS1-B10-02583	0.17289	1						
ARS1-B10-02583-18	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810D	ARS1-10-00609-014	ASP-A-009	TH-232	1.133888	0.165805	0.215109	0.017103	0	pCi	g	ARS1-B10-02583	0.59774	1						
ARS1-B10-02583-15	TLS-SB-IA1-DOE-B1 (6.0-7.0)03181C	ARS1-10-00609-006	ASP-A-009	TH-232	0.944558	0.70273	0.711943	0.673475	0.167141	pCi	g	ARS1-B10-02583	0.02589	1						
ARS1-B10-02583-16	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810D	ARS1-10-00609-007	ASP-A-009	TH-232	0.967947	0.127298	0.172889	0.031687	0.00999	pCi	g	ARS1-B10-02583	0.86221	1						
ARS1-B10-02583-17	TLS-SB-IA1-DOE-B3 (5.3-6.3)03181C	ARS1-10-00609-013	ASP-A-009	TH-232	0.537108	0.084122	0.106257	0.020564	0.005665	pCi	g	ARS1-B10-02583	1.07199	1						
ARS1-B10-02583-19	TLS-SB-IA2-12 (5.4-6.4)03191C	ARS1-10-00610-018	ASP-A-009	TH-232	1.955212	0.224101	0.325673	0.038796	0.010366	pCi	g	ARS1-B10-02583	0.54341	1						
ARS1-B10-02583-20	TLS-SB-IA2-6 (9.8-10.8)03191C	ARS1-10-00610-024	ASP-A-009	TH-232	1.687412	0.202677	0.287524	0.05342	0.018222	pCi	g	ARS1-B10-02583	0.56103	1						
ARS1-B10-02583-22	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	ASP-A-009	TH-232	0.76479	0.168377	0.19208	0.072351	0.023461	pCi	g	ARS1-B10-02583	0.35485	1						
ARS1-B10-02583-21	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	ASP-A-009	TH-232	0.466807	0.093396	0.109114	0.013182	0	pCi	g	ARS1-B10-02583	0.65699	1						
ARS1-B10-02583-23	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	ASP-A-009	TH-232	3.936191	0.48038	0.67608	0.081946	0.020347	pCi	g	ARS1-B10-02583	0.21892	1						
ARS1-B10-02584-09	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	ASP-A-009	TH-228	0.931841	0.135216	0.175975	0.054664	0.02064	pCi	g	ARS1-B10-02584	0.72168	1						
ARS1-B10-02584-06	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	ASP-A-009	TH-228	1.189569	0.272213	0.307848	0.149675	0.054098	pCi	g	ARS1-B10-02584	0.25501	1						
ARS1-B10-02584-07	TLS-SB-IA6-11 (14.0-15.0)03161C	ARS1-10-00591-035	ASP-A-009	TH-228	0.896416	0.155671	0.189661	0.078991	0.030479	pCi	g	ARS1-B10-02584	0.5926	1						
ARS1-B10-02584-08	TLS-SB-IA6-11 (16.0-17.0)03161C	ARS1-10-00591-036	ASP-A-009	TH-228	0.761574	0.141231	0.168578	0.072805	0.027668	pCi	g	ARS1-B10-02584	0.59697	1						
ARS1-B10-02584-04	TLS-SB-IA6-13 (25.0-26.0)03161C	ARS1-10-00591-032	ASP-A-009	TH-228	0.757228	0.140368	0.167568	0.08259	0.03283	pCi	g	ARS1-B10-02584	0.61424	1						
ARS1-B10-02584-05	TLS-SS-IA6-11 (12.0-12.5)03161C	ARS1-10-00591-033	ASP-A-009	TH-228	0.625704	0.136542	0.156085	0.084651	0.03267	pCi	g	ARS1-B10-02584	0.54395	1						
ARS1-B10-02584-16	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	ASP-A-009	TH-228	3.96213	0.425446	0.640559	0.147624	0.058126	pCi	g	ARS1-B10-02584	0.32713	1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02584-17	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	ASP-A-009	TH-228	0.507178	0.087894	0.107158	0.039171	0.014418	pCi	g	ARS1-B10-02584	0.99398	1						
ARS1-B10-02584-18	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	ASP-A-009	TH-228	0.600555	0.149031	0.165767	0.098172	0.037195	pCi	g	ARS1-B10-02584	0.3982	1						
ARS1-B10-02584-15	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	ASP-A-009	TH-228	1.619916	0.219516	0.294141	0.075726	0.027606	pCi	g	ARS1-B10-02584	0.51965	1						
ARS1-B10-02584-12	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	ASP-A-009	TH-228	2.373597	0.288135	0.406594	0.114285	0.045237	pCi	g	ARS1-B10-02584	0.42192	1						
ARS1-B10-02584-13	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	ASP-A-009	TH-228	0.795982	0.134768	0.165582	0.070954	0.027919	pCi	g	ARS1-B10-02584	0.64899	1						
ARS1-B10-02584-10	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	ASP-A-009	TH-228	0.319822	0.07938	0.088291	0.057684	0.022699	pCi	g	ARS1-B10-02584	0.86294	1						
ARS1-B10-02584-11	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	ASP-A-009	TH-228	2.354555	0.294618	0.409611	0.124543	0.049796	pCi	g	ARS1-B10-02584	0.42862	1						
ARS1-B10-02584-23	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	ASP-A-009	TH-228	0.750776	0.159868	0.183824	0.097006	0.037431	pCi	g	ARS1-B10-02584	0.51123	1						
ARS1-B10-02584-20	TLS-SB-IA4-13 (6.4-7.4)03301C	ARS1-10-00700-017	ASP-A-009	TH-228	0.728139	0.271002	0.284932	0.269881	0.107279	pCi	g	ARS1-B10-02584	0.19213	1						
ARS1-B10-02584-21	TLS-SB-IA4-13 (7.4-8.4)03301C	ARS1-10-00700-018	ASP-A-009	TH-228	0.683973	0.11927	0.145117	0.060782	0.023458	pCi	g	ARS1-B10-02584	0.75695	1						
ARS1-B10-02584-22	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	ASP-A-009	TH-228	0.712629	0.116772	0.145099	0.04723	0.017071	pCi	g	ARS1-B10-02584	0.81013	1						
ARS1-B10-02584-14	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	ASP-A-009	TH-228	0.736664	0.16253	0.185319	0.093415	0.034887	pCi	g	ARS1-B10-02584	0.43992	1						
ARS1-B10-02584-19	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	ASP-A-009	TH-228	1.010047	0.143365	0.188297	0.071261	0.028866	pCi	g	ARS1-B10-02584	0.81042	1						
ARS1-B10-02584-09	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	ASP-A-009	TH-230	22.2909	0.628204	2.766362	0.029885	0.0087	pCi	g	ARS1-B10-02584	0.72168	1			7.97	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-06	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	ASP-A-009	TH-230	0.917376	0.228998	0.254427	0.115108	0.038188	pCi	g	ARS1-B10-02584	0.25501	1			2.63	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-07	TLS-SB-IA6-11 (14.0-15.0)03161C	ARS1-10-00591-035	ASP-A-009	TH-230	0.949568	0.151378	0.189964	0.043317	0.013239	pCi	g	ARS1-B10-02584	0.5926	1			3.59	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-08	TLS-SB-IA6-11 (16.0-17.0)03161C	ARS1-10-00591-036	ASP-A-009	TH-230	0.91708	0.146881	0.184009	0.048466	0.016077	pCi	g	ARS1-B10-02584	0.59697	1			3.52	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-04	TLS-SB-IA6-13 (25.0-26.0)03161C	ARS1-10-00591-032	ASP-A-009	TH-230	0.794138	0.13403	0.164852	0.037644	0.010918	pCi	g	ARS1-B10-02584	0.61424	1			3.19	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-05	TLS-SS-IA6-11 (12.0-12.5)03161C	ARS1-10-00591-033	ASP-A-009	TH-230	0.955035	0.156964	0.194835	0.043177	0.012572	pCi	g	ARS1-B10-02584	0.54395	1			3.53	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-16	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	ASP-A-009	TH-230	3.772785	0.399262	0.606076	0.074413	0.02237	pCi	g	ARS1-B10-02584	0.32713	1			5.82	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-17	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	ASP-A-009	TH-230	1.026332	0.119669	0.172358	0.026477	0.008351	pCi	g	ARS1-B10-02584	0.99398	1			4.32	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-18	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	ASP-A-009	TH-230	0.731446	0.154427	0.17794	0.060926	0.019216	pCi	g	ARS1-B10-02584	0.3982	1			2.66	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-15	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	ASP-A-009	TH-230	1.533447	0.206631	0.27757	0.057699	0.019148	pCi	g	ARS1-B10-02584	0.51965	1			4.58	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-12	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	ASP-A-009	TH-230	6.690572	0.462786	0.93169	0.062975	0.020228	pCi	g	ARS1-B10-02584	0.42192	1			6.92	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-13	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	ASP-A-009	TH-230	0.825658	0.130715	0.164451	0.045857	0.015781	pCi	g	ARS1-B10-02584	0.64899	1			3.37	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-10	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	ASP-A-009	TH-230	0.711205	0.108448	0.138382	0.023095	0.005738	pCi	g	ARS1-B10-02584	0.86294	1			3.15	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-11	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	ASP-A-009	TH-230	2.321072	0.278996	0.395643	0.0469	0.011651	pCi	g	ARS1-B10-02584	0.42862	1			5.22	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-23	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	ASP-A-009	TH-230	0.903159	0.164934	0.197783	0.053883	0.016468	pCi	g	ARS1-B10-02584	0.51123	1			3.24	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-20	TLS-SB-IA4-13 (6.4-7.4)03301C	ARS1-10-00700-017	ASP-A-009	TH-230	0.875943	0.258517	0.279355	0.124617	0.036144	pCi	g	ARS1-B10-02584	0.19213	1			2.27	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-21	TLS-SB-IA4-13 (7.4-8.4)03301C	ARS1-10-00700-018	ASP-A-009	TH-230	0.833233	0.12494	0.160473	0.031403	0.009144	pCi	g	ARS1-B10-02584	0.75695	1			3.48	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-22	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	ASP-A-009	TH-230	0.935793	0.128974	0.17154	0.036792	0.012206	pCi	g	ARS1-B10-02584	0.81013	1			3.85	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-14	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	ASP-A-009	TH-230	2.859094	0.301122	0.458345	0.033746	0.005693	pCi	g	ARS1-B10-02584	0.43992	1			5.68	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-19	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	ASP-A-009	TH-230	1.105804	0.142427	0.195313	0.038042	0.012623	pCi	g	ARS1-B10-02584	0.81042	1			4.25	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-02584-09	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	ASP-A-009	TH-232	0.828569	0.12164	0.157558	0.033728	0.010634	pCi	g	ARS1-B10-02584	0.72168	1						
ARS1-B10-02584-06	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	ASP-A-009	TH-232	0.803462	0.214683	0.235624	0.114878	0.038111	pCi	g	ARS1-B10-02584	0.25501	1						
ARS1-B10-02584-07	TLS-SB-IA6-11 (14.0-15.0)03161C	ARS1-10-00591-035	ASP-A-009	TH-232	0.803457	0.139085	0.169629	0.040781	0.011988	pCi	g	ARS1-B10-02584	0.5926	1						
ARS1-B10-02584-08	TLS-SB-IA6-11 (16.0-17.0)03161C	ARS1-10-00591-036	ASP-A-009	TH-232	0.813596	0.13736	0.168929	0.032325	0.008022	pCi	g	ARS1-B10-02584	0.59697	1						
ARS1-B10-02584-04	TLS-SB-IA6-13 (25.0-26.0)03161C	ARS1-10-00591-032	ASP-A-009	TH-232	0.743362	0.129266	0.157421	0.031334	0.007779	pCi	g	ARS1-B10-02584	0.61424	1						
ARS1-B10-02584-05	TLS-SS-IA6-11 (12.0-12.5)03161C	ARS1-10-00591-033	ASP-A-009	TH-232	0.527606	0.118401	0.13448	0.057674	0.019839	pCi	g	ARS1-B10-02584	0.54395	1						
ARS1-B10-02584-16	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	ASP-A-009	TH-232	3.998539	0.410076	0.633804	0.058829	0.014607	pCi	g	ARS1-B10-02584	0.32713	1						
ARS1-B10-02584-17	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	ASP-A-009	TH-232	0.410774	0.075805	0.090615	0.023365	0.006805	pCi	g	ARS1-B10-02584	0.99398	1						
ARS1-B10-02584-18	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	ASP-A-009	TH-232	0.618044	0.140861	0.159442	0.044593	0.011072	pCi	g	ARS1-B10-02584	0.3982	1						
ARS1-B10-02584-15	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	ASP-A-009	TH-232	1.313285	0.191054	0.248385	0.055092	0.017864	pCi	g	ARS1-B10-02584	0.51965	1						
ARS1-B10-02584-12	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	ASP-A-009	TH-232	3.930874	0.354223	0.592606	0.048268	0.012896	pCi	g	ARS1-B10-02584	0.42192	1						
ARS1-B10-02584-13	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	ASP-A-009	TH-232	0.519974	0.104162	0.121652	0.044898	0.015315	pCi	g	ARS1-B10-02584	0.64899	1						
ARS1-B10-02584-10	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	ASP-A-009	TH-232	0.370523	0.078502	0.090376	0.025823	0.007114	pCi	g	ARS1-B10-02584	0.86294	1						
ARS1-B10-02584-11	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	ASP-A-009	TH-232	3.823119	0.357264	0.584072	0.023551	0	pCi	g	ARS1-B10-02584	0.42862	1						
ARS1-B10-02584-23	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	ASP-A-009	TH-232	0.730202	0.148171	0.172462	0.050729	0.014912	pCi	g	ARS1-B10-02584	0.51123	1						
ARS1-B10-02584-20	TLS-SB-IA4-13 (6.4-7.4)03301C	ARS1-10-00700-017	ASP-A-009	TH-232	0.828483	0.249549	0.268888	0.10373	0.025753	pCi	g	ARS1-B10-02584	0.19213	1						
ARS1-B10-02584-21	TLS-SB-IA4-13 (7.4-8.4)03301C	ARS1-10-00700-018	ASP-A-009	TH-232	0.567041	0.104004	0.124554	0.041947	0.014429	pCi	g	ARS1-B10-02584	0.75695	1						
ARS1-B10-02584-22	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	ASP-A-009	TH-232	0.621976	0.105377	0.129442	0.036718	0.012181	pCi	g	ARS1-B10-02584	0.81013	1						
ARS1-B10-02584-14	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	ASP-A-009	TH-232	0.669219	0.145502	0.166471	0.022316	0	pCi	g	ARS1-B10-02584	0.43992	1						
ARS1-B10-02584-19	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	ASP-A-009	TH-232	0.857252	0.125253	0.162551	0.03459	0.01091	pCi	g	ARS1-B10-02584	0.81042	1						
ARS1-B10-02728-04	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	ASP-A-009	TH-228	0.931588	0.153648	0.190485	0.032244	0.007212	pCi	g	ARS1-B10-02728	0.65998	1						
ARS1-B10-02728-05	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	ASP-A-009	TH-228	1.205475	0.18608	0.236332	0.036562	0.008177	pCi	g	ARS1-B10-02728	0.62659	1						
ARS1-B10-02728-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	ASP-A-009	TH-228	0.844439	0.138105	0.171803	0.015913	0	pCi	g	ARS1-B10-02728	0.76073	1						
ARS1-B10-02728-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	ASP-A-009	TH-228	0.75666	0.178939	0.200954	0.070358	0.020532	pCi	g	ARS1-B10-02728	0.38078	1						
ARS1-B10-02728-08	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	ASP-A-009	TH-228	1.028311	0.187763	0.225169	0.043592	0.00975	pCi	g	ARS1-B10-02728	0.51578	1						
ARS1-B10-02728-09	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	ASP-A-009	TH-228	1.164152	0.221151	0.262115	0.063036	0.016821	pCi	g	ARS1-B10-02728	0.42552	1						
ARS1-B10-02728-04	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	ASP-A-009	TH-230	0.79145	0.134672	0.165186	0.038444	0.011219	pCi	g	ARS1-B10-02728	0.65998	1						
ARS1-B10-02728-05	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	ASP-A-009	TH-230	1.565193	0.201452	0.276348	0.047536	0.014692	pCi	g	ARS1-B10-02728	0.62659	1						
ARS1-B10-02728-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	ASP-A-009	TH-230	0.738136	0.124664	0.153297	0.035327	0.010309	pCi	g	ARS1-B10-02728	0.76073	1						
ARS1-B10-02728-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	ASP-A-009	TH-230	0.502906	0.14197	0.154434	0.07608	0.024501	pCi	g	ARS1-B10-02728	0.38078	1						
ARS1-B10-02728-08	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	ASP-A-009	TH-230	0.99713	0.178075	0.215021	0.047762	0.012746	pCi	g	ARS1-B10-02728	0.51578	1						
ARS1-B10-02728-09	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	ASP-A-009	TH-230	1.290071	0.226731	0.275168	0.096714	0.034771	pCi	g	ARS1-B10-02728	0.42552	1						
ARS1-B10-02728-04	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	ASP-A-009	TH-232	0.894001	0.14249	0.178824	0.028903	0.006464	pCi	g	ARS1-B10-02728	0.65998	1						
ARS1-B10-02728-05	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	ASP-A-009	TH-232	1.036173	0.163126	0.205653	0.018116	0	pCi	g	ARS1-B10-02728	0.62659	1						
ARS1-B10-02728-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	ASP-A-009	TH-232	0.846796	0.133119	0.167914	0.03148	0.008401	pCi	g	ARS1-B10-02728	0.76073	1						
ARS1-B10-02728-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	ASP-A-009	TH-232	0.777778	0.174078	0.197838	0.064904	0.018941	pCi	g	ARS1-B10-02728	0.38078	1						
ARS1-B10-02728-08	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	ASP-A-009	TH-232	0.842036	0.163234	0.192359	0.040215	0.008994	pCi	g	ARS1-B10-02728	0.51578	1						
ARS1-B10-02728-09	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	ASP-A-009	TH-232	0.957277	0.192274	0.224399	0.049065	0.010974	pCi	g	ARS1-B10-02728	0.42552	1						
ARS1-B10-00884-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	GAM-A-020	AM-241	0.019198	0.054502	0.054511	0.0924	0.0462	pCi	g	ARS1-B10-00884		1	U	U				
ARS1-B10-00884-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	GAM-A-020	AM-241	-0.02684	0.11506	0.11507	0.132	0.066	pCi	g	ARS1-B10-00884		1	U	U				
ARS1-B10-00884-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	GAM-A-020	RA-226	2.3559	0.86925	0.87682	1.1	0.55	pCi	g	ARS1-B10-00884		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-00884-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	GAM-A-020	RA-226	4.0951	1.0182	1.0387	1.25	0.625	pCi	g	ARS1-B10-00884		1						
ARS1-B10-00884-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	GAM-A-020	RA-228	0.51297	0.18232	0.18499	0.174	0.087	pCi	g	ARS1-B10-00884		1						
ARS1-B10-00884-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	GAM-A-020	RA-228	1.1719	0.16502	0.18012	0.15	0.075	pCi	g	ARS1-B10-00884		1						
ARS1-B10-00884-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	GAM-A-020	U-234	1.4176	0.56908	0.57851	0.989	0.4945	pCi	g	ARS1-B10-00884		1						
ARS1-B10-00884-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	GAM-A-020	U-234	1.4897	0.60789	0.61764	1.15	0.575	pCi	g	ARS1-B10-00884		1						
ARS1-B10-00884-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	GAM-A-020	U-235	0.10914	0.17929	0.17944	0.307	0.1535	pCi	g	ARS1-B10-00884		1	U	U				
ARS1-B10-00884-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	GAM-A-020	U-235	0.18966	0.25845	0.25878	0.429	0.2145	pCi	g	ARS1-B10-00884		1	U	U				
ARS1-B10-00884-04	TLS-SS-IA3-4(0.0-0.5)02111C	ARS1-10-00243-001	GAM-A-020	U-238	1.4176	0.56908	0.57851	0.989	0.4945	pCi	g	ARS1-B10-00884		1						
ARS1-B10-00884-05	TLS-SB-IA3-4(1.0-2.0)02111C	ARS1-10-00243-002	GAM-A-020	U-238	1.4897	0.60789	0.61764	1.15	0.575	pCi	g	ARS1-B10-00884		1						
ARS1-B10-00947-17	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	GAM-A-020	AM-241	-0.0014	0.092002	0.092002	0.157	0.0785	pCi	g	ARS1-B10-00947		1	U	U				
ARS1-B10-00947-14	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	GAM-A-020	AM-241	0.06994	0.15055	0.15059	0.251	0.1255	pCi	g	ARS1-B10-00947		1	U	U				
ARS1-B10-00947-19	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	GAM-A-020	AM-241	0.048059	0.10855	0.10858	0.181	0.0905	pCi	g	ARS1-B10-00947		1	U	U				
ARS1-B10-00947-17	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	GAM-A-020	RA-226	4.654	1.3827	1.4013	1.86	0.93	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-14	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	GAM-A-020	RA-226	7.3321	2.1242	2.1542	2.52	1.26	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-19	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	GAM-A-020	RA-226	4.9018	1.4355	1.4553	1.75	0.875	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-17	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	GAM-A-020	RA-228	1.1181	0.218	0.22843	0.153	0.0765	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-14	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	GAM-A-020	RA-228	3.2018	0.50732	0.54365	0.366	0.183	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-19	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	GAM-A-020	RA-228	2.3249	0.26012	0.29629	0.307	0.1535	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-17	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	GAM-A-020	U-234	2.6638	0.83467	0.85725	1.59	0.795	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-14	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	GAM-A-020	U-234	3.4347	1.0443	1.0758	2.05	1.025	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-19	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	GAM-A-020	U-234	2.4786	0.88252	0.90107	1.72	0.86	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-17	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	GAM-A-020	U-235	0.1204	0.31344	0.31354	0.537	0.2685	pCi	g	ARS1-B10-00947		1	U	U				
ARS1-B10-00947-14	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	GAM-A-020	U-235	0.2649	0.44299	0.44335	0.742	0.371	pCi	g	ARS1-B10-00947		1	U	U				
ARS1-B10-00947-19	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	GAM-A-020	U-235	0.19396	0.34704	0.34729	0.583	0.2915	pCi	g	ARS1-B10-00947		1	U	U				
ARS1-B10-00947-17	TLS-SS-IA3-2(0.0-0.5)02111C	ARS1-10-00243-006	GAM-A-020	U-238	2.6638	0.83467	0.85725	1.59	0.795	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-14	TLS-SB-IA3-4(2.0-3.0)02111C	ARS1-10-00243-003	GAM-A-020	U-238	3.4347	1.0443	1.0758	2.05	1.025	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00947-19	TLS-SB-IA3-2(2.0-3.0)02111C	ARS1-10-00243-008	GAM-A-020	U-238	2.4786	0.88252	0.90107	1.72	0.86	pCi	g	ARS1-B10-00947		1						
ARS1-B10-00971-20	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	GAM-A-020	AM-241	0.027376	0.20702	0.20703	0.353	0.1765	pCi	g	ARS1-B10-00971		1	U	U				
ARS1-B10-00971-15	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	GAM-A-020	AM-241	0.019723	0.060343	0.060353	0.102	0.051	pCi	g	ARS1-B10-00971		1	U	U				
ARS1-B10-00971-14	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	GAM-A-020	AM-241	-0.00192	0.081391	0.081391	0.138	0.069	pCi	g	ARS1-B10-00971		1	U	U				
ARS1-B10-00971-20	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	GAM-A-020	RA-226	6.963	2.7872	2.8079	4.74	2.37	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-15	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	GAM-A-020	RA-226	2.4511	0.86574	0.87398	1.1	0.55	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-14	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	GAM-A-020	RA-226	2.8634	1.0586	1.0678	1.46	0.73	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-20	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	GAM-A-020	RA-228	1.8549	0.49131	0.50418	0.445	0.2225	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-15	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	GAM-A-020	RA-228	0.53169	0.12481	0.12896	0.212	0.106	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-14	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	GAM-A-020	RA-228	1.0517	0.18431	0.19516	0.172	0.086	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-20	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	GAM-A-020	U-234	5.8716	2.2274	2.2687	4.18	2.09	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-15	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	GAM-A-020	U-234	1.1581	0.55878	0.56553	0.983	0.4915	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-14	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	GAM-A-020	U-234	1.8378	0.77483	0.78648	1.37	0.685	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-20	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	GAM-A-020	U-235	0.41968	0.67771	0.67831	1.17	0.585	pCi	g	ARS1-B10-00971		1	U	U				
ARS1-B10-00971-15	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	GAM-A-020	U-235	-0.06304	0.93788	0.93789	0.374	0.187	pCi	g	ARS1-B10-00971		1	U	U				
ARS1-B10-00971-14	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	GAM-A-020	U-235	-0.06961	0.91551	0.91552	0.465	0.2325	pCi	g	ARS1-B10-00971		1	U	U				
ARS1-B10-00971-20	TLS-SS-IA3-6(0.0-0.5)02121C	ARS1-10-00243-016	GAM-A-020	U-238	5.8716	2.2274	2.2687	4.18	2.09	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-15	TLS-SS-IA3-10(0.0-0.5)02111C	ARS1-10-00243-011	GAM-A-020	U-238	1.1581	0.55878	0.56553	0.983	0.4915	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00971-14	TLS-SB-IA3-2(17.0-18.0)02111C	ARS1-10-00243-010	GAM-A-020	U-238	1.8378	0.77483	0.78648	1.37	0.685	pCi	g	ARS1-B10-00971		1						
ARS1-B10-00999-08	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	GAM-A-020	AM-241	-0.02742	0.080825	0.080839	0.137	0.0685	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-12	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	GAM-A-020	AM-241	-0.09228	0.1143	0.11441	0.182	0.091	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-13	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	GAM-A-020	AM-241	-0.01033	0.22346	0.22346	0.124	0.062	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-10	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	GAM-A-020	AM-241	0.001014	0.057637	0.057637	0.0989	0.04945	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-18	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	GAM-A-020	AM-241	-0.00155	1.9652	1.9652	0.166	0.083	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-16	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	GAM-A-020	AM-241	-0.02107	0.087001	0.087008	0.109	0.0545	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-15	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	GAM-A-020	AM-241	0.000721	0.082809	0.082809	0.141	0.0705	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-08	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	GAM-A-020	RA-226	2.0797	1.2641	1.2681	1.71	0.855	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-12	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	GAM-A-020	RA-226	2.1327	0.92466	0.93081	1.22	0.61	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-13	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	GAM-A-020	RA-226	1.9976	0.90427	0.90981	1.2	0.6	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-10	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	GAM-A-020	RA-226	2.0848	0.83724	0.84342	1.18	0.59	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-18	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	GAM-A-020	RA-226	2.3587	1.02	1.0268	1.28	0.64	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-16	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	GAM-A-020	RA-226	1.8088	0.78332	0.78829	1.03	0.515	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-15	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	GAM-A-020	RA-226	2.563	1.3034	1.3094	1.52	0.76	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-08	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	GAM-A-020	RA-228	0.99144	0.28874	0.29501	0.252	0.126	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-12	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	GAM-A-020	RA-228	0.86603	0.16677	0.17481	0.171	0.0855	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-13	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	GAM-A-020	RA-228	0.79356	0.14945	0.15724	0.132	0.066	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-10	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	GAM-A-020	RA-228	0.74885	0.1308	0.13856	0.207	0.1035	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-18	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	GAM-A-020	RA-228	1.0417	0.20791	0.21726	0.145	0.0725	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-16	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	GAM-A-020	RA-228	0.82216	0.12765	0.13715	0.154	0.077	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-15	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	GAM-A-020	RA-228	1.1675	0.20316	0.21529	0.215	0.1075	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-08	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	GAM-A-020	U-234	1.7414	0.7492	0.76055	1.29	0.645	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-12	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	GAM-A-020	U-234	2.1328	1.1114	1.1227	1.43	0.715	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-13	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	GAM-A-020	U-234	0.76331	0.56155	0.56433	0.972	0.486	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-10	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	GAM-A-020	U-234	1.2396	0.52915	0.53692	1.21	0.605	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-18	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	GAM-A-020	U-234	3.0544	1.1656	1.1877	1.51	0.755	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-16	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	GAM-A-020	U-234	0.75254	0.6537	0.65603	0.968	0.484	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-15	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	GAM-A-020	U-234	1.2351	0.69047	0.69669	1.23	0.615	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-08	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	GAM-A-020	U-235	0.22266	0.28802	0.28842	0.482	0.241	pCi	g	ARS1-B10-00999		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-00999-12	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	GAM-A-020	U-235	0.026951	0.23493	0.23494	0.405	0.2025	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-13	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	GAM-A-020	U-235	0.033543	0.20975	0.20976	0.359	0.1795	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-10	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	GAM-A-020	U-235	0.11457	0.20512	0.20527	0.347	0.1735	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-18	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	GAM-A-020	U-235	0.012522	0.23742	0.23742	0.41	0.205	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-16	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	GAM-A-020	U-235	0.036105	0.18599	0.18601	0.323	0.1615	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-15	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	GAM-A-020	U-235	0.098861	0.25896	0.25905	0.44	0.22	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-08	TLS-SS-IA3-8(0.0-0.5)02121C	ARS1-10-00243-021	GAM-A-020	U-238	1.7414	0.7492	0.76055	1.29	0.645	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-12	TLS-SB-IA3-8(8.0-9.0)021210D	ARS1-10-00243-025	GAM-A-020	U-238	2.1328	1.1114	1.1227	1.43	0.715	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-13	TLS-SB-IA3-8(8.0-9.0)02121C	ARS1-10-00243-026	GAM-A-020	U-238	0.76331	0.56155	0.56433	0.972	0.486	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-10	TLS-SB-IA3-8(6.0-7.0)02121C	ARS1-10-00243-023	GAM-A-020	U-238	1.2396	0.52915	0.53692	1.21	0.605	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-18	TLS-SB-IA3-3(6.7-7.7)02121C	ARS1-10-00243-031	GAM-A-020	U-238	3.0544	1.1656	1.1877	1.51	0.755	pCi	g	ARS1-B10-00999		1						
ARS1-B10-00999-16	TLS-SB-IA3-3(3.0-4.0)02121C	ARS1-10-00243-029	GAM-A-020	U-238	0.75254	0.6537	0.65603	0.968	0.484	pCi	g	ARS1-B10-00999		1	U	U				
ARS1-B10-00999-15	TLS-SB-IA3-3(1.0-2.0)02121C	ARS1-10-00243-028	GAM-A-020	U-238	1.2351	0.69047	0.69669	1.23	0.615	pCi	g	ARS1-B10-00999		1						
ARS1-B10-01030-07	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	GAM-A-020	AM-241	-0.0156	0.028461	0.028471	0.0439	0.02195	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-09	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	GAM-A-020	AM-241	-0.00593	0.029186	0.029187	0.0487	0.02435	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-10	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	GAM-A-020	AM-241	-0.00468	0.034349	0.034349	0.0492	0.0246	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-08	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	GAM-A-020	AM-241	0.00684	0.02715	0.027152	0.0453	0.02265	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-12	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	GAM-A-020	AM-241	0.006109	0.030892	0.030893	0.0516	0.0258	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-15	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	GAM-A-020	AM-241	0	0.032091	0.032091	0.0539	0.02695	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-13	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	GAM-A-020	AM-241	0.006068	0.031874	0.031875	0.0532	0.0266	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-17	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	GAM-A-020	AM-241	0.023367	0.10896	0.10896	0.185	0.0925	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-18	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	GAM-A-020	AM-241	-0.008	0.039455	0.039457	0.0561	0.02805	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-19	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	GAM-A-020	AM-241	0.031598	0.078512	0.078529	0.131	0.0655	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-20	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	GAM-A-020	AM-241	0.014974	0.026773	0.026786	0.0444	0.0222	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-07	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	GAM-A-020	RA-226	1.5636	0.36223	0.37408	0.394	0.197	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-09	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	GAM-A-020	RA-226	1.4742	0.35371	0.36536	0.396	0.198	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-10	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	GAM-A-020	RA-226	1.2062	0.31228	0.31809	0.393	0.1965	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-08	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	GAM-A-020	RA-226	1.1362	0.34329	0.34774	0.384	0.192	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-12	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	GAM-A-020	RA-226	1.918	0.39689	0.41309	0.393	0.1965	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-15	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	GAM-A-020	RA-226	1.4876	0.33994	0.35226	0.408	0.204	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-13	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	GAM-A-020	RA-226	1.8559	0.36544	0.37652	0.418	0.209	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-17	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	GAM-A-020	RA-226	3.5357	1.6192	1.6289	1.95	0.975	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-18	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	GAM-A-020	RA-226	1.6055	0.4169	0.42779	0.458	0.229	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-19	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	GAM-A-020	RA-226	1.7105	0.92908	0.93283	1.39	0.695	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-20	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	GAM-A-020	RA-226	1.2693	0.27483	0.28174	0.327	0.1635	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-07	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	GAM-A-020	RA-228	0.70597	0.066757	0.07929	0.0645	0.03225	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-09	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	GAM-A-020	RA-228	0.67413	0.05734	0.07188	0.0569	0.02845	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-10	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	GAM-A-020	RA-228	0.60714	0.064625	0.074665	0.0657	0.03285	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-08	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	GAM-A-020	RA-228	0.65855	0.082981	0.092201	0.0617	0.03085	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-12	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	GAM-A-020	RA-228	0.91428	0.066493	0.086551	0.0709	0.03545	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-15	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	GAM-A-020	RA-228	0.76268	0.08995	0.10245	0.0637	0.03185	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-13	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	GAM-A-020	RA-228	0.87406	0.064701	0.083853	0.0733	0.03665	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-17	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	GAM-A-020	RA-228	1.2452	0.30012	0.30976	0.295	0.1475	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-18	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	GAM-A-020	RA-228	0.89778	0.069344	0.088139	0.0752	0.0376	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-19	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	GAM-A-020	RA-228	1.0079	0.17712	0.1875	0.187	0.0935	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-20	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	GAM-A-020	RA-228	0.70899	0.076802	0.088151	0.0654	0.0327	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-07	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	GAM-A-020	U-234	0.75607	0.19837	0.20521	0.366	0.183	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-09	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	GAM-A-020	U-234	0.6819	0.17951	0.18669	0.408	0.204	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-10	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	GAM-A-020	U-234	0.80672	0.21116	0.2193	0.402	0.201	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-08	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	GAM-A-020	U-234	0.59944	0.19693	0.20216	0.349	0.1745	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-12	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	GAM-A-020	U-234	1.0225	0.23856	0.24891	0.424	0.212	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-15	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	GAM-A-020	U-234	0.88502	0.24884	0.25758	0.434	0.217	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-13	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	GAM-A-020	U-234	0.80627	0.23973	0.24728	0.486	0.243	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-17	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	GAM-A-020	U-234	2.4089	0.80667	0.82581	1.66	0.83	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-18	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	GAM-A-020	U-234	1.0372	0.24466	0.25505	0.46	0.23	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-19	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	GAM-A-020	U-234	1.3663	0.58509	0.59362	1.25	0.625	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-20	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	GAM-A-020	U-234	0.70399	0.21804	0.22455	0.388	0.194	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-07	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	GAM-A-020	U-235	0.052271	0.074362	0.074458	0.123	0.0615	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-09	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	GAM-A-020	U-235	0.029913	0.078006	0.07804	0.13	0.065	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-10	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	GAM-A-020	U-235	0.030169	0.076425	0.076453	0.128	0.064	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-08	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	GAM-A-020	U-235	0.030539	0.073996	0.074025	0.124	0.062	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-12	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	GAM-A-020	U-235	0.061492	0.080852	0.080975	0.134	0.067	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-15	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	GAM-A-020	U-235	0.040452	0.086569	0.086625	0.144	0.072	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-13	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	GAM-A-020	U-235	0.036133	0.084726	0.084762	0.142	0.071	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-17	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	GAM-A-020	U-235	-0.00123	0.31687	0.31687	0.522	0.261	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-18	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	GAM-A-020	U-235	0.090226	0.083208	0.083465	0.137	0.0685	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-19	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	GAM-A-020	U-235	0.072709	0.2117	0.21176	0.369	0.1845	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-20	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	GAM-A-020	U-235	0.037532	0.077018	0.07706	0.128	0.064	pCi	g	ARS1-B10-01030		1	U	U				
ARS1-B10-01030-07	TLS-SB-IA3-1(1.5-2.5)02151C	ARS1-10-00273-002	GAM-A-020	U-238	0.75607	0.19837	0.20521	0.366	0.183	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-09	TLS-SB-IA3-1(10.0-11.0)02151C	ARS1-10-00273-004	GAM-A-020	U-238	0.6819	0.17951	0.18669	0.408	0.204	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-10	TLS-SB-IA3-1(11.0-12.0)02151C	ARS1-10-00273-005	GAM-A-020	U-238	0.80672	0.21116	0.2193	0.402	0.201	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-08	TLS-SB-IA3-1(2.5-3.5)02151C	ARS1-10-00273-003	GAM-A-020	U-238	0.59944	0.19693	0.20216	0.349	0.1745	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-12	TLS-SB-IA3-5(0.8-1.8)02151C	ARS1-10-00273-007	GAM-A-020	U-238	1.0225	0.23856	0.24891	0.424	0.212	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-15	TLS-SB-IA3-5(14.0-15.0)02151C	ARS1-10-00273-010	GAM-A-020	U-238	0.88502	0.24884	0.25758	0.434	0.217	pCi	g	ARS1-B10-01030		1						

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ARS1-B10-01030-13	TLS-SB-IA3-5(2.0-3.0)02151C	ARS1-10-00273-008	GAM-A-020	U-238	0.80627	0.23973	0.24728	0.486	0.243	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-17	TLS-SB-IA3-7(1.0-2.0)02151C	ARS1-10-00273-012	GAM-A-020	U-238	2.4089	0.80667	0.82581	1.66	0.83	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-18	TLS-SB-IA3-7(2.1-3.1)02151C	ARS1-10-00273-013	GAM-A-020	U-238	1.0372	0.24466	0.25505	0.46	0.23	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-19	TLS-SB-IA3-7(3.3-4.3)02151C	ARS1-10-00273-014	GAM-A-020	U-238	1.3663	0.58509	0.59362	1.25	0.625	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01030-20	TLS-SB-IA3-7(4.3-5.3)02151C	ARS1-10-00273-015	GAM-A-020	U-238	0.70399	0.21804	0.22455	0.388	0.194	pCi	g	ARS1-B10-01030		1						
ARS1-B10-01047-14	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	GAM-A-020	AM-241	0.016993	0.077262	0.077267	0.131	0.0655	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-16	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	GAM-A-020	AM-241	0.007756	0.079835	0.079836	0.136	0.068	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-17	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	GAM-A-020	AM-241	0.012591	0.02558	0.02559	0.0425	0.02125	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-19	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	GAM-A-020	AM-241	0.005657	0.033424	0.033426	0.0559	0.02795	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-10	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	GAM-A-020	AM-241	-0.01514	0.031002	0.031012	0.0489	0.02445	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-12	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	GAM-A-020	AM-241	0.003948	0.022315	0.022316	0.0374	0.0187	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-09	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	GAM-A-020	AM-241	0.011209	0.030066	0.030072	0.05	0.025	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-14	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	GAM-A-020	RA-226	2.1004	1.0199	1.0254	1.29	0.645	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-16	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	GAM-A-020	RA-226	1.6821	0.97882	0.98227	1.37	0.685	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-17	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	GAM-A-020	RA-226	1.2556	0.29175	0.29813	0.337	0.1685	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-19	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	GAM-A-020	RA-226	1.8663	0.35379	0.37208	0.396	0.198	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-10	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	GAM-A-020	RA-226	1.5894	0.3582	0.36696	0.407	0.2035	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-12	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	GAM-A-020	RA-226	1.1903	0.34105	0.34597	0.387	0.1935	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-09	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	GAM-A-020	RA-226	1.3617	0.29811	0.30987	0.362	0.181	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-14	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	GAM-A-020	RA-228	0.90618	0.16376	0.17301	0.195	0.0975	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-16	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	GAM-A-020	RA-228	0.97801	0.18629	0.19561	0.188	0.094	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-17	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	GAM-A-020	RA-228	0.58397	0.051169	0.062356	0.0496	0.0248	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-19	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	GAM-A-020	RA-228	0.85051	0.1089	0.12105	0.0763	0.03815	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-10	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	GAM-A-020	RA-228	0.74034	0.08634	0.097643	0.0664	0.0332	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-12	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	GAM-A-020	RA-228	0.64819	0.07254	0.082624	0.0524	0.0262	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-09	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	GAM-A-020	RA-228	0.75251	0.062321	0.078899	0.0677	0.03385	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-14	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	GAM-A-020	U-234	1.4335	0.58678	0.59613	1.19	0.595	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-16	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	GAM-A-020	U-234	1.4688	0.74124	0.74942	1.43	0.715	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-17	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	GAM-A-020	U-234	0.55708	0.19195	0.19659	0.344	0.172	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-19	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	GAM-A-020	U-234	0.74243	0.23015	0.23589	0.47	0.235	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-10	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	GAM-A-020	U-234	0.77766	0.33994	0.3447	0.443	0.2215	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-12	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	GAM-A-020	U-234	0.73922	0.20592	0.21349	0.383	0.1915	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-09	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	GAM-A-020	U-234	0.71183	0.18686	0.19437	0.409	0.2045	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-14	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	GAM-A-020	U-235	0.18087	0.23535	0.23567	0.391	0.1955	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-16	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	GAM-A-020	U-235	0.10001	0.26494	0.26503	0.451	0.2255	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-17	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	GAM-A-020	U-235	0.04102	0.070018	0.070073	0.116	0.058	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-19	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	GAM-A-020	U-235	0.050582	0.088659	0.088737	0.147	0.0735	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-10	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	GAM-A-020	U-235	0.044329	0.085393	0.085447	0.142	0.071	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-12	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	GAM-A-020	U-235	0.065572	0.074216	0.074349	0.123	0.0615	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-09	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	GAM-A-020	U-235	0.021568	0.085685	0.085701	0.144	0.072	pCi	g	ARS1-B10-01047		1	U	U				
ARS1-B10-01047-14	TLS-SB-IA3-12(0.5-1.5)02161C	ARS1-10-00273-021	GAM-A-020	U-238	1.4335	0.58678	0.59613	1.19	0.595	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-16	TLS-SB-IA3-12(11.0-12.0)02161C	ARS1-10-00273-023	GAM-A-020	U-238	1.4688	0.74124	0.74942	1.43	0.715	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-17	TLS-SB-IA3-12(12.0-13.0)02161C	ARS1-10-00273-024	GAM-A-020	U-238	0.55708	0.19195	0.19659	0.344	0.172	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-19	TLS-SB-IA3-13(3.6-4.6)02161C	ARS1-10-00273-026	GAM-A-020	U-238	0.74243	0.23015	0.23589	0.47	0.235	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-10	TLS-SB-IA3-9(3.2-4.2)02151C	ARS1-10-00273-017	GAM-A-020	U-238	0.77766	0.33994	0.3447	0.443	0.2215	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-12	TLS-SB-IA3-9(9.7-10.7)02151C	ARS1-10-00273-019	GAM-A-020	U-238	0.73922	0.20592	0.21349	0.383	0.1915	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01047-09	TLS-SS-IA3-9(0.5-1.5)02151C	ARS1-10-00273-016	GAM-A-020	U-238	0.71183	0.18686	0.19437	0.409	0.2045	pCi	g	ARS1-B10-01047		1						
ARS1-B10-01071-21	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	GAM-A-020	AM-241	-0.01485	0.027355	0.027367	0.0418	0.0209	pCi	g	ARS1-B10-01071		1	U	U				
ARS1-B10-01071-19	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	GAM-A-020	AM-241	0.00433	0.028768	0.028769	0.0481	0.02405	pCi	g	ARS1-B10-01071		1	U	U				
ARS1-B10-01071-20	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	GAM-A-020	AM-241	-0.00021	0.030883	0.030883	0.0518	0.0259	pCi	g	ARS1-B10-01071		1	U	U				
ARS1-B10-01071-21	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	GAM-A-020	RA-226	0.97291	0.27499	0.27907	0.317	0.1585	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-19	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	GAM-A-020	RA-226	1.2831	0.37835	0.38351	0.424	0.212	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-20	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	GAM-A-020	RA-226	1.2384	0.31056	0.31993	0.385	0.1925	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-21	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	GAM-A-020	RA-228	0.47337	0.066264	0.072287	0.0498	0.0249	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-19	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	GAM-A-020	RA-228	0.66614	0.067089	0.078444	0.056	0.028	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-20	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	GAM-A-020	RA-228	0.73451	0.061722	0.077719	0.0628	0.0314	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-21	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	GAM-A-020	U-234	0.68255	0.17049	0.17826	0.348	0.174	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-19	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	GAM-A-020	U-234	0.77852	0.18826	0.19715	0.397	0.1985	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-20	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	GAM-A-020	U-234	0.78412	0.21736	0.22522	0.424	0.212	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-21	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	GAM-A-020	U-235	0.02386	0.062134	0.062155	0.104	0.052	pCi	g	ARS1-B10-01071		1	U	U				
ARS1-B10-01071-19	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	GAM-A-020	U-235	0.033335	0.075039	0.075074	0.126	0.063	pCi	g	ARS1-B10-01071		1	U	U				
ARS1-B10-01071-20	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	GAM-A-020	U-235	0.034154	0.084044	0.084084	0.14	0.07	pCi	g	ARS1-B10-01071		1	U	U				
ARS1-B10-01071-21	TLS-SB-IA3-13(12.0-13.0)02161C	ARS1-10-00273-029	GAM-A-020	U-238	0.68255	0.17049	0.17826	0.348	0.174	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-19	TLS-SB-IA3-13(5.0-6.0)02161C	ARS1-10-00273-027	GAM-A-020	U-238	0.77852	0.18826	0.19715	0.397	0.1985	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01071-20	TLS-SB-IA3-13(7.0-8.0)02161C	ARS1-10-00273-028	GAM-A-020	U-238	0.78412	0.21736	0.22522	0.424	0.212	pCi	g	ARS1-B10-01071		1						
ARS1-B10-01154-19	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	GAM-A-020	AM-241	-0.01286	0.36706	0.36706	0.142	0.071	pCi	g	ARS1-B10-01154		1	U	U				
ARS1-B10-01154-19	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	GAM-A-020	RA-226	1.8966	1.5	1.503	1.79	0.895	pCi	g	ARS1-B10-01154		1						
ARS1-B10-01154-19	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	GAM-A-020	RA-228	1.0301	0.2242	0.233	0.176	0.088	pCi	g	ARS1-B10-01154		1						
ARS1-B10-01154-19	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	GAM-A-020	U-234	2.3077	0.86587	0.88228	1.58	0.79	pCi	g	ARS1-B10-01154		1						
ARS1-B10-01154-19	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	GAM-A-020	U-235	-0.03871	5.7146	5.7146	0.542	0.271	pCi	g	ARS1-B10-01154		1	U	U				
ARS1-B10-01154-19	TLS-SS-IA3-14 (0.0-0.5) 02161C	ARS1-10-00282-001	GAM-A-020	U-238	2.3077	0.86587	0.88228	1.58	0.79	pCi	g	ARS1-B10-01154		1						
ARS1-B10-01160-10	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	GAM-A-020	AM-241	0.036775	0.074996	0.075021	0.126	0.063	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-12	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	GAM-A-020	AM-241	-0.01314	0.17534	0.17534	0.121	0.0605	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-04	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	GAM-A-020	AM-241	-0.03157	0.10234	0.10235	0.136	0.068	pCi	g	ARS1-B10-01160		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01160-08	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	GAM-A-020	AM-241	0.00932	0.078343	0.078345	0.133	0.0665	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-20	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	GAM-A-020	AM-241	0.037953	0.084757	0.08478	0.142	0.071	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-14	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	GAM-A-020	AM-241	0.019518	0.094658	0.094664	0.16	0.08	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-15	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	GAM-A-020	AM-241	0.024423	0.059051	0.059065	0.0993	0.04965	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-16	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	GAM-A-020	AM-241	0.012254	0.063876	0.063879	0.108	0.054	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-18	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	GAM-A-020	AM-241	0.050498	0.050623	0.050691	0.0827	0.04135	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-19	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	GAM-A-020	AM-241	-0.03985	0.11456	0.11458	0.136	0.068	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-13	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	GAM-A-020	AM-241	0.050077	0.10668	0.10672	0.179	0.0895	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-10	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	GAM-A-020	RA-226	2.4661	1.2181	1.2241	1.49	0.745	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-12	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	GAM-A-020	RA-226	1.6969	0.82254	0.82693	1.1	0.55	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-04	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	GAM-A-020	RA-226	3.566	1.2322	1.2445	1.47	0.735	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-08	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	GAM-A-020	RA-226	2.609	1.1014	1.1092	1.33	0.665	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-20	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	GAM-A-020	RA-226	2.3279	1.0125	1.0189	1.7	0.85	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-14	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	GAM-A-020	RA-226	3.8088	1.6452	1.6563	1.85	0.925	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-15	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	GAM-A-020	RA-226	1.4854	0.72244	0.72608	0.96	0.48	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-16	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	GAM-A-020	RA-226	1.9129	0.86776	0.87303	1.22	0.61	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-18	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	GAM-A-020	RA-226	1.6531	0.8248	0.82874	1.06	0.53	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-19	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	GAM-A-020	RA-226	2.0972	1.1521	1.1569	1.51	0.755	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-13	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	GAM-A-020	RA-226	2.3813	1.2869	1.2922	2.13	1.065	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-08	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	GAM-A-020	RA-228	1.0723	0.20183	0.21236	0.204	0.102	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-10	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	GAM-A-020	RA-228	0.99126	0.21269	0.22112	0.195	0.0975	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-12	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	GAM-A-020	RA-228	0.96511	0.18091	0.19043	0.152	0.076	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-04	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	GAM-A-020	RA-228	1.2423	0.18228	0.19742	0.241	0.1205	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-20	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	GAM-A-020	RA-228	1.2111	0.2485	0.25926	0.207	0.1035	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-14	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	GAM-A-020	RA-228	1.3046	0.2375	0.25028	0.167	0.0835	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-15	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	GAM-A-020	RA-228	0.74828	0.15971	0.16611	0.127	0.0635	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-16	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	GAM-A-020	RA-228	0.59376	0.13778	0.14239	0.211	0.1055	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-18	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	GAM-A-020	RA-228	0.77096	0.1638	0.17043	0.141	0.0705	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-19	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	GAM-A-020	RA-228	0.6888	0.16074	0.16625	0.284	0.142	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-13	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	GAM-A-020	RA-228	1.1494	0.21439	0.22557	0.296	0.148	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-08	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	GAM-A-020	U-234	1.4433	0.58639	0.59588	1.08	0.54	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-10	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	GAM-A-020	U-234	1.8238	0.93323	0.94278	1.27	0.635	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-12	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	GAM-A-020	U-234	1.4669	0.64775	0.65663	1.06	0.53	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-04	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	GAM-A-020	U-234	2.4734	0.65597	0.68062	1.32	0.66	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-20	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	GAM-A-020	U-234	2.4081	0.69844	0.72045	1.46	0.73	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-14	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	GAM-A-020	U-234	1.5049	0.99039	0.99674	1.49	0.745	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-15	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	GAM-A-020	U-234	0.069587	0.53464	0.53467	0.853	0.4265	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-16	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	GAM-A-020	U-234	1.2499	0.83788	0.84305	1.13	0.565	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-18	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	GAM-A-020	U-234	0.83099	0.467	0.47097	0.891	0.4455	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-19	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	GAM-A-020	U-234	1.8029	0.69326	0.70577	1.27	0.635	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-13	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	GAM-A-020	U-234	3.7365	1.1981	1.2306	2.06	1.03	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-08	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	GAM-A-020	U-235	0.020832	0.24107	0.24108	0.414	0.207	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-10	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	GAM-A-020	U-235	0.10167	0.22202	0.22213	0.381	0.1905	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-12	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	GAM-A-020	U-235	0.051423	0.21955	0.21958	0.374	0.187	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-04	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	GAM-A-020	U-235	0.093039	0.26503	0.2651	0.452	0.226	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-20	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	GAM-A-020	U-235	0.12609	0.28711	0.28724	0.489	0.2445	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-14	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	GAM-A-020	U-235	-0.02775	0.53707	0.53707	0.506	0.253	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-15	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	GAM-A-020	U-235	0.008888	0.17747	0.17747	0.309	0.1545	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-16	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	GAM-A-020	U-235	0.15934	0.19571	0.19601	0.328	0.164	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-18	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	GAM-A-020	U-235	0.030144	0.18926	0.18927	0.329	0.1645	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-19	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	GAM-A-020	U-235	-0.03571	2.256	2.256	0.368	0.184	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-13	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	GAM-A-020	U-235	0.19286	0.35841	0.35865	0.609	0.3045	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-08	TLS-SB-IA3-11 (2.2-3.2) 02161C	ARS1-10-00282-007	GAM-A-020	U-238	1.4433	0.58639	0.59588	1.08	0.54	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-10	TLS-SB-IA3-11 (4.0-5.0) 021610D	ARS1-10-00282-009	GAM-A-020	U-238	1.8238	0.93323	0.94278	1.27	0.635	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-12	TLS-SB-IA3-11 (8.0-9.0) 02161C	ARS1-10-00282-011	GAM-A-020	U-238	1.4669	0.64775	0.65663	1.06	0.53	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-04	TLS-SB-IA3-14 (1.5-2.5) 02161C	ARS1-10-00282-003	GAM-A-020	U-238	2.4734	0.65597	0.68062	1.32	0.66	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-20	TLS-SB-IA3-15 (0.9-1.9) 02171C	ARS1-10-00282-019	GAM-A-020	U-238	2.4081	0.69844	0.72045	1.46	0.73	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-14	TLS-SB-IA3-17 (1.9-2.9) 02171C	ARS1-10-00282-013	GAM-A-020	U-238	1.5049	0.99039	0.99674	1.49	0.745	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-15	TLS-SB-IA3-17 (3.0-4.0) 02171C	ARS1-10-00282-014	GAM-A-020	U-238	0.069587	0.53464	0.53467	0.853	0.4265	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-16	TLS-SB-IA3-17 (5.3-6.3) 02171C	ARS1-10-00282-015	GAM-A-020	U-238	1.2499	0.83788	0.84305	1.13	0.565	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-18	TLS-SB-IA3-17 (9.0-10.0) 021710D	ARS1-10-00282-017	GAM-A-020	U-238	0.83099	0.467	0.47097	0.891	0.4455	pCi	g	ARS1-B10-01160		1	U	U				
ARS1-B10-01160-19	TLS-SS-IA3-15 (0.0-0.5) 02171C	ARS1-10-00282-018	GAM-A-020	U-238	1.8029	0.69326	0.70577	1.27	0.635	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01160-13	TLS-SS-IA3-17 (0.5-1.0) 02171C	ARS1-10-00282-012	GAM-A-020	U-238	3.7365	1.1981	1.2306	2.06	1.03	pCi	g	ARS1-B10-01160		1						
ARS1-B10-01190-12	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	GAM-A-020	AM-241	-4.6E-05	0.073216	0.073216	0.118	0.059	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-14	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	GAM-A-020	AM-241	0	0.081225	0.081225	0.139	0.0695	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-16	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	GAM-A-020	AM-241	-0.01424	0.13084	0.13084	0.103	0.0515	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-17	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	GAM-A-020	AM-241	-0.0017	0.068141	0.068141	0.129	0.0645	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-18	TLS-SB-IA3-16 (7.8-8.8) 021710D	ARS1-10-00282-029	GAM-A-020	AM-241	0.020612	0.060805	0.060815	0.103	0.0515	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-13	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	GAM-A-020	AM-241	-0.0206	0.098738	0.098744	0.112	0.056	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-12	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	GAM-A-020	RA-226	1.3204	0.8505	0.85307	1.22	0.61	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-14	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	GAM-A-020	RA-226	2.7331	1.0924	1.1005	1.4	0.7	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-16	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	GAM-A-020	RA-226	1.6996	0.91776	0.92171	1.27	0.635	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-17	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	GAM-A-020	RA-226	1.524	0.87827	0.88158	1.22	0.61	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-18	TLS-SB-IA3-16 (7.8-8.8) 021710D	ARS1-10-00282-029	GAM-A-020	RA-226	2.2988	0.83293	0.84047	0.979	0.4895	pCi	g	ARS1-B10-01190		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01190-13	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	GAM-A-020	RA-226	2.2187	1.0078	1.0136	1.39	0.695	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-12	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	GAM-A-020	RA-228	0.85558	0.14903	0.15777	0.176	0.088	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-14	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	GAM-A-020	RA-228	1.0813	0.20784	0.21806	0.184	0.092	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-16	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	GAM-A-020	RA-228	0.59094	0.14501	0.14951	0.194	0.097	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-17	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	GAM-A-020	RA-228	0.80998	0.13154	0.14037	0.148	0.074	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-18	TLS-SB-IA3-16 (7.8-8.8) 02171OD	ARS1-10-00282-029	GAM-A-020	RA-228	0.81659	0.18668	0.19321	0.144	0.072	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-13	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	GAM-A-020	RA-228	0.93373	0.19582	0.20394	0.152	0.076	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-12	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	GAM-A-020	U-234	1.5197	0.60481	0.61535	1.24	0.62	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-14	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	GAM-A-020	U-234	1.6728	0.74567	0.75621	1.25	0.625	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-16	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	GAM-A-020	U-234	0.47857	0.67953	0.68044	0.963	0.4815	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-17	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	GAM-A-020	U-234	1.851	0.54913	0.56622	1.11	0.555	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-18	TLS-SB-IA3-16 (7.8-8.8) 02171OD	ARS1-10-00282-029	GAM-A-020	U-234	0.68877	0.58031	0.58251	0.863	0.4315	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-13	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	GAM-A-020	U-234	1.413	0.59003	0.59907	1.12	0.56	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-12	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	GAM-A-020	U-235	0.024365	0.21919	0.2192	0.379	0.1895	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-14	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	GAM-A-020	U-235	0.18261	0.21556	0.21591	0.359	0.1795	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-16	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	GAM-A-020	U-235	0.010031	0.20031	0.20031	0.345	0.1725	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-17	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	GAM-A-020	U-235	0.037563	0.20854	0.20856	0.361	0.1805	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-18	TLS-SB-IA3-16 (7.8-8.8) 02171OD	ARS1-10-00282-029	GAM-A-020	U-235	-0.12447	0.43648	0.43656	0.314	0.157	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-13	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	GAM-A-020	U-235	-0.04615	0.78159	0.7816	0.412	0.206	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-12	TLS-SB-IA3-15 (7.0-8.0) 02171C	ARS1-10-00282-023	GAM-A-020	U-238	1.5197	0.60481	0.61535	1.24	0.62	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-14	TLS-SB-IA3-16 (1.6-2.6) 02171C	ARS1-10-00282-025	GAM-A-020	U-238	1.6728	0.74567	0.75621	1.25	0.625	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-16	TLS-SB-IA3-16 (6.8-7.8) 02171C	ARS1-10-00282-027	GAM-A-020	U-238	0.47857	0.67953	0.68044	0.963	0.4815	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-17	TLS-SB-IA3-16 (7.8-8.8) 02171C	ARS1-10-00282-028	GAM-A-020	U-238	1.851	0.54913	0.56622	1.11	0.555	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01190-18	TLS-SB-IA3-16 (7.8-8.8) 02171OD	ARS1-10-00282-029	GAM-A-020	U-238	0.68877	0.58031	0.58251	0.863	0.4315	pCi	g	ARS1-B10-01190		1	U	U				
ARS1-B10-01190-13	TLS-SS-IA3-16 (0.0-0.5) 02171C	ARS1-10-00282-024	GAM-A-020	U-238	1.413	0.59003	0.59907	1.12	0.56	pCi	g	ARS1-B10-01190		1						
ARS1-B10-01271-17	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	GAM-A-020	AM-241	-0.00747	0.53765	0.53765	0.127	0.0635	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-19	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	GAM-A-020	AM-241	0.007131	0.059636	0.059637	0.102	0.051	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-20	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	GAM-A-020	AM-241	-0.01013	4.4395	4.4395	0.133	0.0665	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-17	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	GAM-A-020	RA-226	2.1019	1.1219	1.1268	1.26	0.63	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-19	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	GAM-A-020	RA-226	0.86176	0.68617	0.68746	0.961	0.4805	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-20	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	GAM-A-020	RA-226	2.8421	1.3789	1.39	1.79	0.895	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-17	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	GAM-A-020	RA-228	0.6689	0.16396	0.16906	0.139	0.0695	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-19	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	GAM-A-020	RA-228	0.70918	0.15321	0.15921	0.12	0.06	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-20	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	GAM-A-020	RA-228	0.56357	0.2226	0.22534	0.351	0.1755	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-17	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	GAM-A-020	U-234	1.3098	0.48612	0.49553	1.05	0.525	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-19	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	GAM-A-020	U-234	0.60253	0.68462	0.68605	0.949	0.4745	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-20	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	GAM-A-020	U-234	1.9614	0.77443	0.78732	1.59	0.795	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-17	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	GAM-A-020	U-235	0.12433	0.21177	0.21194	0.355	0.1775	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-19	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	GAM-A-020	U-235	0.029642	0.1718	0.17181	0.299	0.1495	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-20	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	GAM-A-020	U-235	0.24675	0.30158	0.30234	0.502	0.251	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-17	TLS-SB-IA3-22(4.6-5.6)02171C	ARS1-10-00311-004	GAM-A-020	U-238	1.3098	0.48612	0.49553	1.05	0.525	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01271-19	TLS-SB-IA3-22(7.6-8.6)02171C	ARS1-10-00311-006	GAM-A-020	U-238	0.60253	0.68462	0.68605	0.949	0.4745	pCi	g	ARS1-B10-01271		1	U	U				
ARS1-B10-01271-20	TLS-SS-IA3-18(0.0-0.5)02171C	ARS1-10-00311-007	GAM-A-020	U-238	1.9614	0.77443	0.78732	1.59	0.795	pCi	g	ARS1-B10-01271		1						
ARS1-B10-01287-14	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	GAM-A-020	AM-241	0.019264	0.08822	0.088226	0.15	0.075	pCi	g	ARS1-B10-01287		1	U	U				
ARS1-B10-01287-14	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	GAM-A-020	RA-226	3.2689	1.0544	1.0664	1.65	0.825	pCi	g	ARS1-B10-01287		1						
ARS1-B10-01287-14	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	GAM-A-020	RA-228	0.96126	0.18048	0.18978	0.173	0.0865	pCi	g	ARS1-B10-01287		1						
ARS1-B10-01287-14	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	GAM-A-020	U-234	2.4135	0.88337	0.90095	1.55	0.775	pCi	g	ARS1-B10-01287		1						
ARS1-B10-01287-14	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	GAM-A-020	U-235	0.26141	0.27279	0.27336	0.453	0.2265	pCi	g	ARS1-B10-01287		1	U	U				
ARS1-B10-01287-14	TLS-SB-IA3-18(1.3-2.3)02171C	ARS1-10-00311-008	GAM-A-020	U-238	2.4135	0.88337	0.90095	1.55	0.775	pCi	g	ARS1-B10-01287		1						
ARS1-B10-01304-12	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	GAM-A-020	AM-241	0.045009	0.13327	0.13329	0.223	0.1115	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-08	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	GAM-A-020	AM-241	-0.0296	0.11391	0.11392	0.167	0.0835	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-19	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	GAM-A-020	AM-241	0.000574	0.084265	0.084265	0.144	0.072	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-18	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	GAM-A-020	AM-241	-0.00634	0.5082	0.5082	0.203	0.1015	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-17	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	GAM-A-020	AM-241	0.037528	0.081967	0.08199	0.138	0.069	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-12	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	GAM-A-020	RA-226	14.275	2.0491	2.1645	2.14	1.07	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-08	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	GAM-A-020	RA-226	8.8098	1.6504	1.7083	1.61	0.805	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-19	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	GAM-A-020	RA-226	11.72	1.7798	1.8743	1.94	0.97	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-18	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	GAM-A-020	RA-226	5.7759	1.4435	1.4708	1.79	0.895	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-17	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	GAM-A-020	RA-226	1.5812	0.93995	0.94312	1.33	0.665	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-12	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	GAM-A-020	RA-228	2.0657	0.2483	0.27847	0.258	0.129	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-08	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	GAM-A-020	RA-228	0.9387	0.25521	0.26146	0.213	0.1065	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-19	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	GAM-A-020	RA-228	2.3549	0.32479	0.35571	0.195	0.0975	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-18	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	GAM-A-020	RA-228	2.5277	0.29404	0.33205	0.0993	0.04965	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-17	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	GAM-A-020	RA-228	0.98207	0.19298	0.20207	0.116	0.058	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-12	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	GAM-A-020	U-234	12.372	1.5379	1.7859	2.13	1.065	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-08	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	GAM-A-020	U-234	1.7407	0.87699	0.88655	1.68	0.84	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-19	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	GAM-A-020	U-234	8.2338	1.268	1.4046	1.96	0.98	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-18	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	GAM-A-020	U-234	2.6161	0.86221	0.88332	1.79	0.895	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-17	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	GAM-A-020	U-234	2.3145	0.86456	0.88109	1.15	0.575	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-12	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	GAM-A-020	U-235	0.56322	0.39428	0.39613	0.639	0.3195	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-08	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	GAM-A-020	U-235	0.19563	0.3068	0.30709	0.514	0.257	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-19	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	GAM-A-020	U-235	0.59024	0.37554	0.37769	0.602	0.301	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-18	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	GAM-A-020	U-235	0.15881	0.24292	0.24316	0.412	0.206	pCi	g	ARS1-B10-01304		1	U	U				
ARS1-B10-01304-17	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	GAM-A-020	U-235	-0.02168	0.45495	0.45495	0.45	0.225	pCi	g	ARS1-B10-01304		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01304-12	TLS-SB-IA3-19(1.0-2.0)02181C	ARS1-10-00311-023	GAM-A-020	U-238	12.372	1.5379	1.7859	2.13	1.065	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-08	TLS-SB-IA3-21(3.0-4.0)02171C	ARS1-10-00311-019	GAM-A-020	U-238	1.7407	0.87699	0.88655	1.68	0.84	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-19	TLS-SB-IA5-21(17.2-18.2)02181C	ARS1-10-00311-030	GAM-A-020	U-238	8.2338	1.268	1.4046	1.96	0.98	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-18	TLS-SB-IA5-21(3.8-4.8)02181C	ARS1-10-00311-029	GAM-A-020	U-238	2.6161	0.86221	0.88332	1.79	0.895	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01304-17	TLS-SS-IA5-21(0.8-1.3)02181C	ARS1-10-00311-028	GAM-A-020	U-238	2.3145	0.86456	0.88109	1.15	0.575	pCi	g	ARS1-B10-01304		1						
ARS1-B10-01314-17	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	GAM-A-020	AM-241	-0.02097	0.10685	0.10685	0.127	0.0635	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-18	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	GAM-A-020	AM-241	-0.04672	0.14534	0.14536	0.217	0.1085	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-19	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	GAM-A-020	AM-241	0.003746	0.064183	0.064183	0.109	0.0545	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-09	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	GAM-A-020	AM-241	0.031721	0.069729	0.069749	0.117	0.0585	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-13	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	GAM-A-020	AM-241	0.056869	0.1201	0.12014	0.2	0.1	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-11	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	GAM-A-020	AM-241	0.001128	0.053747	0.053747	0.093	0.0465	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-17	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	GAM-A-020	RA-226	2.3014	0.90162	0.9086	1.16	0.58	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-18	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	GAM-A-020	RA-226	9.9861	1.8068	1.8748	2.26	1.13	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-19	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	GAM-A-020	RA-226	2.3436	0.97298	0.9797	1.29	0.645	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-09	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	GAM-A-020	RA-226	1.6434	0.97364	0.97712	1.26	0.63	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-13	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	GAM-A-020	RA-226	6.2609	1.7325	1.7593	2.14	1.07	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-11	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	GAM-A-020	RA-226	2.0561	0.9349	0.94027	1.19	0.595	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-17	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	GAM-A-020	RA-228	0.82965	0.18963	0.19627	0.177	0.0885	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-18	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	GAM-A-020	RA-228	2.3792	0.44695	0.47037	0.354	0.177	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-19	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	GAM-A-020	RA-228	0.82229	0.14506	0.1535	0.177	0.0885	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-09	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	GAM-A-020	RA-228	0.72191	0.14578	0.15241	0.153	0.0765	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-13	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	GAM-A-020	RA-228	2.1466	0.23991	0.27334	0.251	0.1255	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-11	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	GAM-A-020	RA-228	0.79818	0.18012	0.18659	0.188	0.094	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-17	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	GAM-A-020	U-234	1.0453	0.55457	0.55985	1.04	0.52	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-18	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	GAM-A-020	U-234	8.4536	1.4153	1.5453	2.24	1.12	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-19	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	GAM-A-020	U-234	1.4227	0.6308	0.63938	1.12	0.56	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-09	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	GAM-A-020	U-234	1.086	0.46667	0.47343	0.973	0.4865	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-13	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	GAM-A-020	U-234	3.0164	0.92086	0.94709	1.84	0.92	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-11	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	GAM-A-020	U-234	0.93268	0.47753	0.48241	0.884	0.442	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-17	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	GAM-A-020	U-235	0.06698	0.20952	0.20957	0.362	0.181	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-18	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	GAM-A-020	U-235	0.47302	0.39693	0.39824	0.651	0.3255	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-19	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	GAM-A-020	U-235	0.13952	0.20898	0.2092	0.354	0.177	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-09	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	GAM-A-020	U-235	0.099485	0.20967	0.20978	0.355	0.1775	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-13	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	GAM-A-020	U-235	0.055928	0.37859	0.37861	0.651	0.3255	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-11	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	GAM-A-020	U-235	-0.12263	0.6826	0.68265	0.359	0.1795	pCi	g	ARS1-B10-01314		1	U	U				
ARS1-B10-01314-17	TLS-SB-IA4-21(0.5-1.5)02181C	ARS1-10-00311-045	GAM-A-020	U-238	1.0453	0.55457	0.55985	1.04	0.52	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-18	TLS-SB-IA4-21(5.5-6.5)02181C	ARS1-10-00311-046	GAM-A-020	U-238	8.4536	1.4153	1.5453	2.24	1.12	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-19	TLS-SB-IA4-21(6.7-7.7)02181C	ARS1-10-00311-047	GAM-A-020	U-238	1.4227	0.6308	0.63938	1.12	0.56	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-09	TLS-SB-IA4-22(7.0-8.0)02181C	ARS1-10-00311-037	GAM-A-020	U-238	1.086	0.46667	0.47343	0.973	0.4865	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-13	TLS-SB-IA5-19(4.5-5.5)02181C	ARS1-10-00311-041	GAM-A-020	U-238	3.0164	0.92086	0.94709	1.84	0.92	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01314-11	TLS-SS-IA5-19(0.0-0.5)02181C	ARS1-10-00311-039	GAM-A-020	U-238	0.93268	0.47753	0.48241	0.884	0.442	pCi	g	ARS1-B10-01314		1						
ARS1-B10-01331-18	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	GAM-A-020	AM-241	-0.00196	0.14012	0.14012	0.0629	0.03145	pCi	g	ARS1-B10-01331		1	U	U				
ARS1-B10-01331-18	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	GAM-A-020	RA-226	1.1362	0.75396	0.756	1.06	0.53	pCi	g	ARS1-B10-01331		1						
ARS1-B10-01331-18	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	GAM-A-020	RA-228	0.41396	0.14422	0.14641	0.276	0.138	pCi	g	ARS1-B10-01331		1						
ARS1-B10-01331-18	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	GAM-A-020	U-234	0.67862	0.58187	0.584	0.886	0.443	pCi	g	ARS1-B10-01331		1	U	U				
ARS1-B10-01331-18	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	GAM-A-020	U-235	0.10974	0.16915	0.16931	0.29	0.145	pCi	g	ARS1-B10-01331		1	U	U				
ARS1-B10-01331-18	TLS-SS-IA5-18 (0.8-1.3) 02191C	ARS1-10-00429-001	GAM-A-020	U-238	0.67862	0.58187	0.584	0.886	0.443	pCi	g	ARS1-B10-01331		1	U	U				
ARS1-B10-01346-17	TLS-SB-IA5-15 (2.0-3.0) 022210D	ARS1-10-00429-013	GAM-A-020	AM-241	-0.04637	0.099554	0.099584	0.129	0.0645	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-19	TLS-SB-IA5-15 (35.0-36.0) 02221C	ARS1-10-00429-015	GAM-A-020	AM-241	0.007517	0.065124	0.065125	0.111	0.0555	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-20	TLS-SB-IA5-15 (37.0-38.0) 02221C	ARS1-10-00429-016	GAM-A-020	AM-241	-0.00718	0.13595	0.13595	0.0889	0.04445	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-18	TLS-SB-IA5-15 (7.6-8.6) 02221C	ARS1-10-00429-014	GAM-A-020	AM-241	-0.0291	0.14092	0.14093	0.177	0.0885	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-08	TLS-SB-IA5-18 (18.0-19.0) 02191C	ARS1-10-00429-004	GAM-A-020	AM-241	0.065706	0.12218	0.12223	0.204	0.102	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-09	TLS-SB-IA5-18 (19.0-20.0) 02191C	ARS1-10-00429-005	GAM-A-020	AM-241	-0.01507	0.53732	0.53733	0.222	0.111	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-13	TLS-SB-IA5-20 (31.0-32.0) 02191C	ARS1-10-00429-009	GAM-A-020	AM-241	-0.00676	0.59124	0.59124	0.108	0.054	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-15	TLS-SS-IA5-15 (0.5-1.0) 02221C	ARS1-10-00429-011	GAM-A-020	AM-241	-0.00151	0.14167	0.14167	0.242	0.121	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-10	TLS-SS-IA5-20 (1.4-1.9) 02191C	ARS1-10-00429-006	GAM-A-020	AM-241	0.018961	0.07249	0.072497	0.124	0.062	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-17	TLS-SB-IA5-15 (2.0-3.0) 022210D	ARS1-10-00429-013	GAM-A-020	RA-226	1.8811	1.1274	1.1313	1.37	0.685	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-19	TLS-SB-IA5-15 (35.0-36.0) 02221C	ARS1-10-00429-015	GAM-A-020	RA-226	1.536	0.91271	0.91595	1.16	0.58	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-20	TLS-SB-IA5-15 (37.0-38.0) 02221C	ARS1-10-00429-016	GAM-A-020	RA-226	1.9622	0.86738	0.87266	1.12	0.56	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-18	TLS-SB-IA5-15 (7.6-8.6) 02221C	ARS1-10-00429-014	GAM-A-020	RA-226	3.7213	1.6615	1.6714	1.87	0.935	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-08	TLS-SB-IA5-18 (18.0-19.0) 02191C	ARS1-10-00429-004	GAM-A-020	RA-226	3.5965	1.6081	1.6176	2.58	1.29	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-09	TLS-SB-IA5-18 (19.0-20.0) 02191C	ARS1-10-00429-005	GAM-A-020	RA-226	4.7583	1.5937	1.6115	2.45	1.225	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-13	TLS-SB-IA5-20 (31.0-32.0) 02191C	ARS1-10-00429-009	GAM-A-020	RA-226	1.9059	0.94984	0.95464	1.17	0.585	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-15	TLS-SS-IA5-15 (0.5-1.0) 02221C	ARS1-10-00429-011	GAM-A-020	RA-226	8.1744	2.0912	2.1289	2.51	1.255	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-10	TLS-SS-IA5-20 (1.4-1.9) 02191C	ARS1-10-00429-006	GAM-A-020	RA-226	2.4145	1.3575	1.3626	1.63	0.815	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-17	TLS-SB-IA5-15 (2.0-3.0) 022210D	ARS1-10-00429-013	GAM-A-020	RA-228	0.82019	0.17215	0.17941	0.135	0.0675	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-19	TLS-SB-IA5-15 (35.0-36.0) 02221C	ARS1-10-00429-015	GAM-A-020	RA-228	0.66093	0.16042	0.16551	0.153	0.0765	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-20	TLS-SB-IA5-15 (37.0-38.0) 02221C	ARS1-10-00429-016	GAM-A-020	RA-228	1.0029	0.16564	0.17659	0.0874	0.0437	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-18	TLS-SB-IA5-15 (7.6-8.6) 02221C	ARS1-10-00429-014	GAM-A-020	RA-228	1.7799	0.26048	0.28222	0.261	0.1305	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-08	TLS-SB-IA5-18 (18.0-19.0) 02191C	ARS1-10-00429-004	GAM-A-020	RA-228	2.3014	0.30412	0.33498	0.293	0.1465	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-09	TLS-SB-IA5-18 (19.0-20.0) 02191C	ARS1-10-00429-005	GAM-A-020	RA-228	2.2308	0.32788	0.35551	0.288	0.144	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-13	TLS-SB-IA5-20 (31.0-32.0) 02191C	ARS1-10-00429-009	GAM-A-020	RA-228	0.74635	0.18586	0.19146	0.195	0.0975	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-15	TLS-SS-IA5-15 (0.5-1.0) 02221C	ARS1-10-00429-011	GAM-A-020	RA-228	3.2938	0.44334	0.48677	0.573	0.2865	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-10	TLS-SS-IA5-20 (1.4-1.9) 02191C	ARS1-10-00429-006	GAM-A-020	RA-228	0.79597	0.21114	0.21665	0.352	0.176	pCi	g	ARS1-B10-01346		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01346-17	TLS-SB-IA5-15 (2.0-3.0) 022210	ARS1-10-00429-013	GAM-A-020	U-234	0.86552	0.57404	0.57754	1	0.5	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-19	TLS-SB-IA5-15 (35.0-36.0) 02221	ARS1-10-00429-015	GAM-A-020	U-234	1.3031	0.56678	0.57479	1.12	0.56	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-20	TLS-SB-IA5-15 (37.0-38.0) 02221	ARS1-10-00429-016	GAM-A-020	U-234	0.85113	0.6638	0.66673	0.982	0.491	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-18	TLS-SB-IA5-15 (7.6-8.6) 02221	ARS1-10-00429-014	GAM-A-020	U-234	2.2614	0.84328	0.85945	1.68	0.84	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-08	TLS-SB-IA5-18 (18.0-19.0) 02191	ARS1-10-00429-004	GAM-A-020	U-234	3.2946	0.96184	0.99323	2.02	1.01	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-09	TLS-SB-IA5-18 (19.0-20.0) 02191	ARS1-10-00429-005	GAM-A-020	U-234	4.1179	0.9627	1.009	1.85	0.925	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-13	TLS-SB-IA5-20 (31.0-32.0) 02191	ARS1-10-00429-009	GAM-A-020	U-234	1.4328	0.54988	0.55984	0.987	0.4935	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-15	TLS-SS-IA5-15 (0.5-1.0) 02221	ARS1-10-00429-011	GAM-A-020	U-234	5.0903	1.8003	1.8405	2.24	1.12	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-10	TLS-SS-IA5-20 (1.4-1.9) 02191	ARS1-10-00429-006	GAM-A-020	U-234	1.5029	0.70083	0.70945	1.2	0.6	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-17	TLS-SB-IA5-15 (2.0-3.0) 022210	ARS1-10-00429-013	GAM-A-020	U-235	-0.08713	0.45007	0.45011	0.423	0.2115	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-19	TLS-SB-IA5-15 (35.0-36.0) 02221	ARS1-10-00429-015	GAM-A-020	U-235	-0.01957	2.4761	2.4761	0.369	0.1845	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-20	TLS-SB-IA5-15 (37.0-38.0) 02221	ARS1-10-00429-016	GAM-A-020	U-235	0.068245	0.20059	0.20064	0.345	0.1725	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-18	TLS-SB-IA5-15 (7.6-8.6) 02221	ARS1-10-00429-014	GAM-A-020	U-235	0.066088	0.30263	0.30267	0.521	0.2605	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-08	TLS-SB-IA5-18 (18.0-19.0) 02191	ARS1-10-00429-004	GAM-A-020	U-235	-0.05299	4.0228	4.0228	0.713	0.3565	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-09	TLS-SB-IA5-18 (19.0-20.0) 02191	ARS1-10-00429-005	GAM-A-020	U-235	0.32806	0.40138	0.40201	0.664	0.332	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-13	TLS-SB-IA5-20 (31.0-32.0) 02191	ARS1-10-00429-009	GAM-A-020	U-235	0.025997	0.212	0.212	0.364	0.182	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-15	TLS-SS-IA5-15 (0.5-1.0) 02221	ARS1-10-00429-011	GAM-A-020	U-235	0.34869	0.46993	0.47052	0.785	0.3925	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-10	TLS-SS-IA5-20 (1.4-1.9) 02191	ARS1-10-00429-006	GAM-A-020	U-235	-0.03606	0.54795	0.54796	0.412	0.206	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-17	TLS-SB-IA5-15 (2.0-3.0) 022210	ARS1-10-00429-013	GAM-A-020	U-238	0.86552	0.57404	0.57754	1	0.5	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-19	TLS-SB-IA5-15 (35.0-36.0) 02221	ARS1-10-00429-015	GAM-A-020	U-238	1.3031	0.56678	0.57479	1.12	0.56	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-20	TLS-SB-IA5-15 (37.0-38.0) 02221	ARS1-10-00429-016	GAM-A-020	U-238	0.85113	0.6638	0.66673	0.982	0.491	pCi	g	ARS1-B10-01346		1	U	U				
ARS1-B10-01346-18	TLS-SB-IA5-15 (7.6-8.6) 02221	ARS1-10-00429-014	GAM-A-020	U-238	2.2614	0.84328	0.85945	1.68	0.84	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-08	TLS-SB-IA5-18 (18.0-19.0) 02191	ARS1-10-00429-004	GAM-A-020	U-238	3.2946	0.96184	0.99323	2.02	1.01	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-09	TLS-SB-IA5-18 (19.0-20.0) 02191	ARS1-10-00429-005	GAM-A-020	U-238	4.1179	0.9627	1.009	1.85	0.925	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-13	TLS-SB-IA5-20 (31.0-32.0) 02191	ARS1-10-00429-009	GAM-A-020	U-238	1.4328	0.54988	0.55984	0.987	0.4935	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-15	TLS-SS-IA5-15 (0.5-1.0) 02221	ARS1-10-00429-011	GAM-A-020	U-238	5.0903	1.8003	1.8405	2.24	1.12	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01346-10	TLS-SS-IA5-20 (1.4-1.9) 02191	ARS1-10-00429-006	GAM-A-020	U-238	1.5029	0.70083	0.70945	1.2	0.6	pCi	g	ARS1-B10-01346		1						
ARS1-B10-01357-20	TLS-SB-IA5-17 (18.5-19.5) 02221	ARS1-10-00429-029	GAM-A-020	AM-241	0.016804	0.076918	0.076923	0.131	0.0655	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-19	TLS-SB-IA5-17 (7.4-8.4) 02221	ARS1-10-00429-028	GAM-A-020	AM-241	-0.02877	0.079656	0.07967	0.134	0.067	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-12	TLS-SB-IA5-22 (21.4-22.4) 02221	ARS1-10-00429-021	GAM-A-020	AM-241	0.013199	0.073204	0.073207	0.124	0.062	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-09	TLS-SB-IA5-22 (4.0-5.0) 02221	ARS1-10-00429-018	GAM-A-020	AM-241	0.055498	0.11507	0.11511	0.192	0.096	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-11	TLS-SB-IA5-22 (9.0-10.0) 02221	ARS1-10-00429-020	GAM-A-020	AM-241	0.011631	0.11869	0.11869	0.201	0.1005	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-16	TLS-SB-IA5-8 (13.0-14.0) 02221	ARS1-10-00429-025	GAM-A-020	AM-241	0.006568	0.063462	0.063463	0.109	0.0545	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-14	TLS-SB-IA5-8 (4.0-5.0) 02221	ARS1-10-00429-023	GAM-A-020	AM-241	-0.00817	0.53193	0.53193	0.128	0.064	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-15	TLS-SB-IA5-8 (6.8-7.8) 02221	ARS1-10-00429-024	GAM-A-020	AM-241	0.007407	0.055024	0.055026	0.0944	0.0472	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-08	TLS-SS-IA5-22 (2.4-2.9) 02221	ARS1-10-00429-017	GAM-A-020	AM-241	0.14204	0.12775	0.12796	0.209	0.1045	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-13	TLS-SS-IA5-8 (1.5-2.0) 02221	ARS1-10-00429-022	GAM-A-020	AM-241	0.026821	0.071278	0.071292	0.12	0.06	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-20	TLS-SB-IA5-17 (18.5-19.5) 02221	ARS1-10-00429-029	GAM-A-020	RA-226	3.5441	1.1948	1.2073	1.47	0.735	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-19	TLS-SB-IA5-17 (7.4-8.4) 02221	ARS1-10-00429-028	GAM-A-020	RA-226	1.947	1.1769	1.1807	1.65	0.825	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-12	TLS-SB-IA5-22 (21.4-22.4) 02221	ARS1-10-00429-021	GAM-A-020	RA-226	1.6943	0.86092	0.86489	1.12	0.56	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-09	TLS-SB-IA5-22 (4.0-5.0) 02221	ARS1-10-00429-018	GAM-A-020	RA-226	5.3644	1.7442	1.7638	2.14	1.07	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-11	TLS-SB-IA5-22 (9.0-10.0) 02221	ARS1-10-00429-020	GAM-A-020	RA-226	4.1758	2.0996	2.11	2.39	1.195	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-16	TLS-SB-IA5-8 (13.0-14.0) 02221	ARS1-10-00429-025	GAM-A-020	RA-226	1.7426	1.065	1.0684	1.37	0.685	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-14	TLS-SB-IA5-8 (4.0-5.0) 02221	ARS1-10-00429-023	GAM-A-020	RA-226	2.6261	1.1616	1.169	1.38	0.69	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-15	TLS-SB-IA5-8 (6.8-7.8) 02221	ARS1-10-00429-024	GAM-A-020	RA-226	1.9684	1.0067	1.0113	1.3	0.65	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-08	TLS-SS-IA5-22 (2.4-2.9) 02221	ARS1-10-00429-017	GAM-A-020	RA-226	2.4284	1.5655	1.5702	1.87	0.935	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-13	TLS-SS-IA5-8 (1.5-2.0) 02221	ARS1-10-00429-022	GAM-A-020	RA-226	2.6743	1.2205	1.2274	1.69	0.845	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-20	TLS-SB-IA5-17 (18.5-19.5) 02221	ARS1-10-00429-029	GAM-A-020	RA-228	1.0685	0.2039	0.21407	0.255	0.1275	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-19	TLS-SB-IA5-17 (7.4-8.4) 02221	ARS1-10-00429-028	GAM-A-020	RA-228	0.87677	0.17617	0.18411	0.172	0.086	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-12	TLS-SB-IA5-22 (21.4-22.4) 02221	ARS1-10-00429-021	GAM-A-020	RA-228	0.91242	0.14122	0.1518	0.165	0.0825	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-09	TLS-SB-IA5-22 (4.0-5.0) 02221	ARS1-10-00429-018	GAM-A-020	RA-228	2.369	0.28459	0.3192	0.218	0.109	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-11	TLS-SB-IA5-22 (9.0-10.0) 02221	ARS1-10-00429-020	GAM-A-020	RA-228	2.1342	0.3045	0.33166	0.238	0.119	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-16	TLS-SB-IA5-8 (13.0-14.0) 02221	ARS1-10-00429-025	GAM-A-020	RA-228	0.62706	0.18428	0.18821	0.27	0.135	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-14	TLS-SB-IA5-8 (4.0-5.0) 02221	ARS1-10-00429-023	GAM-A-020	RA-228	0.76901	0.1651	0.17176	0.227	0.1135	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-15	TLS-SB-IA5-8 (6.8-7.8) 02221	ARS1-10-00429-024	GAM-A-020	RA-228	0.67661	0.16168	0.16687	0.236	0.118	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-08	TLS-SS-IA5-22 (2.4-2.9) 02221	ARS1-10-00429-017	GAM-A-020	RA-228	0.48605	0.18249	0.18493	0.349	0.1745	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-13	TLS-SS-IA5-8 (1.5-2.0) 02221	ARS1-10-00429-022	GAM-A-020	RA-228	0.62001	0.19648	0.20009	0.337	0.1685	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-20	TLS-SB-IA5-17 (18.5-19.5) 02221	ARS1-10-00429-029	GAM-A-020	U-234	1.4795	0.76032	0.76841	1.37	0.685	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-19	TLS-SB-IA5-17 (7.4-8.4) 02221	ARS1-10-00429-028	GAM-A-020	U-234	2.113	0.78392	0.79911	1.58	0.79	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-12	TLS-SB-IA5-22 (21.4-22.4) 02221	ARS1-10-00429-021	GAM-A-020	U-234	1.1995	0.69801	0.70354	1.02	0.51	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-09	TLS-SB-IA5-22 (4.0-5.0) 02221	ARS1-10-00429-018	GAM-A-020	U-234	3.5375	1.0527	1.0843	1.88	0.94	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-11	TLS-SB-IA5-22 (9.0-10.0) 02221	ARS1-10-00429-020	GAM-A-020	U-234	2.6212	1.0587	1.0761	1.9	0.95	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-16	TLS-SB-IA5-8 (13.0-14.0) 02221	ARS1-10-00429-025	GAM-A-020	U-234	1.2862	0.55967	0.56757	1.03	0.515	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-14	TLS-SB-IA5-8 (4.0-5.0) 02221	ARS1-10-00429-023	GAM-A-020	U-234	1.2283	0.55638	0.56363	1.06	0.53	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-15	TLS-SB-IA5-8 (6.8-7.8) 02221	ARS1-10-00429-024	GAM-A-020	U-234	1.2236	0.5297	0.53763	0.99	0.495	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-08	TLS-SS-IA5-22 (2.4-2.9) 02221	ARS1-10-00429-017	GAM-A-020	U-234	2.3574	1.1567	1.1696	1.63	0.815	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-13	TLS-SS-IA5-8 (1.5-2.0) 02221	ARS1-10-00429-022	GAM-A-020	U-234	2.1854	0.75674	0.77409	1.47	0.735	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-20	TLS-SB-IA5-17 (18.5-19.5) 02221	ARS1-10-00429-029	GAM-A-020	U-235	0.047622	0.28757	0.28759	0.493	0.2465	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-19	TLS-SB-IA5-17 (7.4-8.4) 02221	ARS1-10-00429-028	GAM-A-020	U-235	-0.03348	0.43854	0.43855	0.465	0.2325	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-12	TLS-SB-IA5-22 (21.4-22.4) 02221	ARS1-10-00429-021	GAM-A-020	U-235	-0.03104	0.58813	0.58814	0.346	0.173	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-09	TLS-SB-IA5-22 (4.0-5.0) 02221	ARS1-10-00429-018	GAM-A-020	U-235	0.20525	0.36491	0.36518	0.612	0.306	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-11	TLS-SB-IA5-22 (9.0-10.0) 02221	ARS1-10-00429-020	GAM-A-020	U-235	0.020576	0.36082	0.36082	0.618	0.309	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-16	TLS-SB-IA5-8 (13.0-14.0) 02221	ARS1-10-00429-025	GAM-A-020	U-235	0.079412	0.21926	0.21932	0.381	0.1905	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-14	TLS-SB-IA5-8 (4.0-5.0) 02221	ARS1-10-00429-023	GAM-A-020	U-235	-0.00877	0.42626	0.42626	0.37	0.185	pCi	g	ARS1-B10-01357		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01357-15	TLS-SB-IA5-8 (6.8-7.8) 022210	ARS1-10-00429-024	GAM-A-020	U-235	0.064428	0.23416	0.2342	0.401	0.2005	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-08	TLS-SS-IA5-22 (2.4-2.9) 02221	ARS1-10-00429-017	GAM-A-020	U-235	-0.10771	5.1574	5.1574	0.488	0.244	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-13	TLS-SS-IA5-8 (1.5-2.0) 02221	ARS1-10-00429-022	GAM-A-020	U-235	-0.1631	7.2907	7.2908	0.422	0.211	pCi	g	ARS1-B10-01357		1	U	U				
ARS1-B10-01357-20	TLS-SB-IA5-17 (18.5-19.5) 02221	ARS1-10-00429-029	GAM-A-020	U-238	1.4795	0.76032	0.76841	1.37	0.685	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-19	TLS-SB-IA5-17 (7.4-8.4) 02221	ARS1-10-00429-028	GAM-A-020	U-238	2.113	0.78392	0.79911	1.58	0.79	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-12	TLS-SB-IA5-22 (21.4-22.4) 02221	ARS1-10-00429-021	GAM-A-020	U-238	1.1995	0.69801	0.70354	1.02	0.51	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-09	TLS-SB-IA5-22 (4.0-5.0) 02221	ARS1-10-00429-018	GAM-A-020	U-238	3.5375	1.0527	1.0843	1.88	0.94	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-11	TLS-SB-IA5-22 (9.0-10.0) 02221	ARS1-10-00429-020	GAM-A-020	U-238	2.6212	1.0587	1.0761	1.9	0.95	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-16	TLS-SB-IA5-8 (13.0-14.0) 02221	ARS1-10-00429-025	GAM-A-020	U-238	1.2862	0.55967	0.56757	1.03	0.515	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-14	TLS-SB-IA5-8 (4.0-5.0) 02221	ARS1-10-00429-023	GAM-A-020	U-238	1.2283	0.55638	0.56363	1.06	0.53	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-15	TLS-SB-IA5-8 (6.8-7.8) 02221	ARS1-10-00429-024	GAM-A-020	U-238	1.2236	0.5297	0.53763	0.99	0.495	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-08	TLS-SS-IA5-22 (2.4-2.9) 02221	ARS1-10-00429-017	GAM-A-020	U-238	2.3574	1.1567	1.1696	1.63	0.815	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01357-13	TLS-SS-IA5-8 (1.5-2.0) 02221	ARS1-10-00429-022	GAM-A-020	U-238	2.1854	0.75674	0.77409	1.47	0.735	pCi	g	ARS1-B10-01357		1						
ARS1-B10-01380-11	TLS-SB-IA5-5 (18.0-19.0) 02231	ARS1-10-00443-003	GAM-A-020	AM-241	-0.00623	0.61678	0.61678	0.14	0.07	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-16	TLS-SB-IA5-7 (0.5-1.5) 02231	ARS1-10-00443-008	GAM-A-020	AM-241	-0.09667	0.12746	0.12757	0.202	0.101	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-17	TLS-SB-IA5-7 (0.5-1.5) 022310	ARS1-10-00443-009	GAM-A-020	AM-241	0.008393	0.077782	0.077783	0.133	0.0665	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-18	TLS-SB-IA5-7 (2.0-3.0) 02231	ARS1-10-00443-010	GAM-A-020	AM-241	-0.03775	0.078447	0.078474	0.131	0.0655	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-19	TLS-SB-IA5-7 (9.0-10.0) 02231	ARS1-10-00443-011	GAM-A-020	AM-241	-0.04501	0.093663	0.093693	0.156	0.078	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-09	TLS-SS-IA5-5 (1.1-1.6) 02231	ARS1-10-00443-001	GAM-A-020	AM-241	0.047445	0.083136	0.083176	0.139	0.0695	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-11	TLS-SB-IA5-5 (18.0-19.0) 02231	ARS1-10-00443-003	GAM-A-020	RA-226	2.4833	1.0648	1.0717	1.45	0.725	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-16	TLS-SB-IA5-7 (0.5-1.5) 02231	ARS1-10-00443-008	GAM-A-020	RA-226	2.4821	1.1774	1.1839	1.41	0.705	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-17	TLS-SB-IA5-7 (0.5-1.5) 022310	ARS1-10-00443-009	GAM-A-020	RA-226	2.6995	1.1307	1.1387	1.35	0.675	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-18	TLS-SB-IA5-7 (2.0-3.0) 02231	ARS1-10-00443-010	GAM-A-020	RA-226	1.5038	1.0158	1.0185	1.34	0.67	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-19	TLS-SB-IA5-7 (9.0-10.0) 02231	ARS1-10-00443-011	GAM-A-020	RA-226	1.8629	1.1319	1.1355	1.68	0.84	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-09	TLS-SS-IA5-5 (1.1-1.6) 02231	ARS1-10-00443-001	GAM-A-020	RA-226	2.0825	1.3006	1.3046	1.67	0.835	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-11	TLS-SB-IA5-5 (18.0-19.0) 02231	ARS1-10-00443-003	GAM-A-020	RA-228	1.1872	0.21129	0.22337	0.165	0.0825	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-16	TLS-SB-IA5-7 (0.5-1.5) 02231	ARS1-10-00443-008	GAM-A-020	RA-228	0.97381	0.19489	0.2036	0.183	0.0915	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-17	TLS-SB-IA5-7 (0.5-1.5) 022310	ARS1-10-00443-009	GAM-A-020	RA-228	1.1389	0.192	0.20441	0.185	0.0925	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-18	TLS-SB-IA5-7 (2.0-3.0) 02231	ARS1-10-00443-010	GAM-A-020	RA-228	1.0392	0.20816	0.21761	0.152	0.076	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-19	TLS-SB-IA5-7 (9.0-10.0) 02231	ARS1-10-00443-011	GAM-A-020	RA-228	0.87433	0.19148	0.19877	0.214	0.107	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-09	TLS-SS-IA5-5 (1.1-1.6) 02231	ARS1-10-00443-001	GAM-A-020	RA-228	1.0926	0.25563	0.26419	0.212	0.106	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-11	TLS-SB-IA5-5 (18.0-19.0) 02231	ARS1-10-00443-003	GAM-A-020	U-234	1.4174	1.0005	1.0059	1.41	0.705	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-16	TLS-SB-IA5-7 (0.5-1.5) 02231	ARS1-10-00443-008	GAM-A-020	U-234	3.5306	1.1555	1.1852	1.47	0.735	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-17	TLS-SB-IA5-7 (0.5-1.5) 022310	ARS1-10-00443-009	GAM-A-020	U-234	1.2414	0.60629	0.6131	1.13	0.565	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-18	TLS-SB-IA5-7 (2.0-3.0) 02231	ARS1-10-00443-010	GAM-A-020	U-234	0.46192	0.61861	0.61958	0.989	0.4945	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-19	TLS-SB-IA5-7 (9.0-10.0) 02231	ARS1-10-00443-011	GAM-A-020	U-234	1.7973	0.63938	0.65284	1.71	0.855	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-09	TLS-SS-IA5-5 (1.1-1.6) 02231	ARS1-10-00443-001	GAM-A-020	U-234	1.2522	0.63906	0.64596	1.24	0.62	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-11	TLS-SB-IA5-5 (18.0-19.0) 02231	ARS1-10-00443-003	GAM-A-020	U-235	0.044291	0.23177	0.23179	0.409	0.2045	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-16	TLS-SB-IA5-7 (0.5-1.5) 02231	ARS1-10-00443-008	GAM-A-020	U-235	0.018237	0.25357	0.25358	0.44	0.22	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-17	TLS-SB-IA5-7 (0.5-1.5) 022310	ARS1-10-00443-009	GAM-A-020	U-235	-0.03079	3.7828	3.7828	0.39	0.195	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-18	TLS-SB-IA5-7 (2.0-3.0) 02231	ARS1-10-00443-010	GAM-A-020	U-235	0.15695	0.22476	0.22502	0.377	0.1885	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-19	TLS-SB-IA5-7 (9.0-10.0) 02231	ARS1-10-00443-011	GAM-A-020	U-235	0.084536	0.27533	0.27539	0.479	0.2395	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-09	TLS-SS-IA5-5 (1.1-1.6) 02231	ARS1-10-00443-001	GAM-A-020	U-235	0.043873	0.26968	0.2697	0.467	0.2335	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-11	TLS-SB-IA5-5 (18.0-19.0) 02231	ARS1-10-00443-003	GAM-A-020	U-238	1.4174	1.0005	1.0059	1.41	0.705	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-16	TLS-SB-IA5-7 (0.5-1.5) 02231	ARS1-10-00443-008	GAM-A-020	U-238	3.5306	1.1555	1.1852	1.47	0.735	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-17	TLS-SB-IA5-7 (0.5-1.5) 022310	ARS1-10-00443-009	GAM-A-020	U-238	1.2414	0.60629	0.6131	1.13	0.565	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-18	TLS-SB-IA5-7 (2.0-3.0) 02231	ARS1-10-00443-010	GAM-A-020	U-238	0.46192	0.61861	0.61958	0.989	0.4945	pCi	g	ARS1-B10-01380		1	U	U				
ARS1-B10-01380-19	TLS-SB-IA5-7 (9.0-10.0) 02231	ARS1-10-00443-011	GAM-A-020	U-238	1.7973	0.63938	0.65284	1.71	0.855	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01380-09	TLS-SS-IA5-5 (1.1-1.6) 02231	ARS1-10-00443-001	GAM-A-020	U-238	1.2522	0.63906	0.64596	1.24	0.62	pCi	g	ARS1-B10-01380		1						
ARS1-B10-01410-14	TLS-SB-IA5-13 (13.2-14.2) 02231	ARS1-10-00443-014	GAM-A-020	AM-241	0.000171	0.13335	0.13335	0.226	0.113	pCi	g	ARS1-B10-01410		1	U	U				
ARS1-B10-01410-15	TLS-SB-IA5-13 (13.2-14.2) 022310	ARS1-10-00443-015	GAM-A-020	AM-241	-0.05087	0.15956	0.15958	0.242	0.121	pCi	g	ARS1-B10-01410		1	U	U				
ARS1-B10-01410-16	TLS-SB-IA5-13 (18.8-19.8) 02231	ARS1-10-00443-016	GAM-A-020	AM-241	0.012124	0.12037	0.12038	0.203	0.1015	pCi	g	ARS1-B10-01410		1	U	U				
ARS1-B10-01410-17	TLS-SB-IA5-13 (23.8-25.0) 02231	ARS1-10-00443-017	GAM-A-020	AM-241	0.049341	0.1389	0.13893	0.232	0.116	pCi	g	ARS1-B10-01410		1	U	U				
ARS1-B10-01410-18	TLS-SB-IA5-13 (25.8-26.8) 02231	ARS1-10-00443-018	GAM-A-020	AM-241	-0.04034	0.066962	0.066998	0.111	0.0555	pCi	g	ARS1-B10-01410		1	U	U				
ARS1-B10-01410-14	TLS-SB-IA5-13 (13.2-14.2) 02231	ARS1-10-00443-014	GAM-A-020	RA-226	27.336	2.5515	3.0573	2.25	1.125	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-15	TLS-SB-IA5-13 (13.2-14.2) 022310	ARS1-10-00443-015	GAM-A-020	RA-226	27.097	2.5222	2.8643	2.47	1.235	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-16	TLS-SB-IA5-13 (18.8-19.8) 02231	ARS1-10-00443-016	GAM-A-020	RA-226	11.625	1.7645	1.8537	2.06	1.03	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-17	TLS-SB-IA5-13 (23.8-25.0) 02231	ARS1-10-00443-017	GAM-A-020	RA-226	36.711	2.3055	2.921	1.78	0.89	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-18	TLS-SB-IA5-13 (25.8-26.8) 02231	ARS1-10-00443-018	GAM-A-020	RA-226	2.2313	0.91634	0.9228	1.17	0.585	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-14	TLS-SB-IA5-13 (13.2-14.2) 02231	ARS1-10-00443-014	GAM-A-020	RA-228	1.8768	0.29364	0.31597	0.335	0.1675	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-15	TLS-SB-IA5-13 (13.2-14.2) 022310	ARS1-10-00443-015	GAM-A-020	RA-228	1.6419	0.27489	0.29291	0.318	0.159	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-16	TLS-SB-IA5-13 (18.8-19.8) 02231	ARS1-10-00443-016	GAM-A-020	RA-228	2.0582	0.267	0.29507	0.254	0.127	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-17	TLS-SB-IA5-13 (23.8-25.0) 02231	ARS1-10-00443-017	GAM-A-020	RA-228	1.2917	0.24387	0.25629	0.178	0.089	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-18	TLS-SB-IA5-13 (25.8-26.8) 02231	ARS1-10-00443-018	GAM-A-020	RA-228	0.80305	0.15717	0.16464	0.124	0.062	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-14	TLS-SB-IA5-13 (13.2-14.2) 02231	ARS1-10-00443-014	GAM-A-020	U-234	22.009	1.6373	2.2836	2.24	1.12	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-15	TLS-SB-IA5-13 (13.2-14.2) 022310	ARS1-10-00443-015	GAM-A-020	U-234	23.144	1.7549	2.4421	2.25	1.125	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-16	TLS-SB-IA5-13 (18.8-19.8) 02231	ARS1-10-00443-016	GAM-A-020	U-234	8.874	1.6477	1.7717	2.01	1.005	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-17	TLS-SB-IA5-13 (23.8-25.0) 02231	ARS1-10-00443-017	GAM-A-020	U-234	33.071	1.6897	2.9572	1.89	0.945	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-18	TLS-SB-IA5-13 (25.8-26.8) 02231	ARS1-10-00443-018	GAM-A-020	U-234	1.3712	0.45704	0.46853	0.836	0.418	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-14	TLS-SB-IA5-13 (13.2-14.2) 02231	ARS1-10-00443-014	GAM-A-020	U-235	1.4706	0.46323	0.48058	0.665	0.3325	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-15	TLS-SB-IA5-13 (13.2-14.2) 022310	ARS1-10-00443-015	GAM-A-020	U-235	1.655	0.45561	0.46939	0.674	0.337	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-16	TLS-SB-IA5-13 (18.8-19.8) 02231	ARS1-10-00443-016	GAM-A-020	U-235	0.53573	0.3787	0.38044	0.619	0.3095	pCi	g	ARS1-B10-01410		1	U	U				
ARS1-B10-01410-17	TLS-SB-IA5-13 (23.8-25.0) 02231	ARS1-10-00443-017	GAM-A-020	U-235	2.1637	0.38819	0.41508	0.452	0.226	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-18	TLS-SB-IA5-13 (25.8-26.8) 02231	ARS1-10-00443-018	GAM-A-020	U-235	0.10683	0.20713	0.20726	0.35	0.175	pCi	g	ARS1-B10-01410		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01410-14	TLS-SB-IA5-13 (13.2-14.2) 02231C	ARS1-10-00443-014	GAM-A-020	U-238	22.009	1.6373	2.2836	2.24	1.12	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-15	TLS-SB-IA5-13 (13.2-14.2) 022310D	ARS1-10-00443-015	GAM-A-020	U-238	23.144	1.7549	2.4421	2.25	1.125	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-16	TLS-SB-IA5-13 (18.8-19.8) 02231C	ARS1-10-00443-016	GAM-A-020	U-238	8.874	1.6477	1.7717	2.01	1.005	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-17	TLS-SB-IA5-13 (23.8-25.0) 02231C	ARS1-10-00443-017	GAM-A-020	U-238	33.071	1.6897	2.9572	1.89	0.945	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01410-18	TLS-SB-IA5-13 (25.8-26.8) 02231C	ARS1-10-00443-018	GAM-A-020	U-238	1.3712	0.45704	0.46853	0.836	0.418	pCi	g	ARS1-B10-01410		1						
ARS1-B10-01415-08	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	GAM-A-020	AM-241	0.079663	0.086928	0.087032	0.143	0.0715	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-09	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	GAM-A-020	AM-241	-0.01326	0.066002	0.066005	0.112	0.056	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-10	TLS-SB-IA5-4 (14.0-15.0) 022310D	ARS1-10-00443-023	GAM-A-020	AM-241	-0.02629	0.0786	0.078612	0.104	0.052	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-12	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	GAM-A-020	AM-241	-0.00557	0.22264	0.22264	0.124	0.062	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-10	TLS-SB-IA5-4 (14.0-15.0) 022310D	ARS1-10-00443-023	GAM-A-020	RA-226	1.7181	0.88915	0.89309	1.16	0.58	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-08	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	GAM-A-020	RA-226	2.5441	1.2253	1.2319	1.56	0.78	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-09	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	GAM-A-020	RA-226	3.2623	1.267	1.2769	1.4	0.7	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-12	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	GAM-A-020	RA-226	1.9548	0.82617	0.8349	1.08	0.54	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-10	TLS-SB-IA5-4 (14.0-15.0) 022310D	ARS1-10-00443-023	GAM-A-020	RA-228	1.1014	0.22153	0.2315	0.152	0.076	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-08	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	GAM-A-020	RA-228	1.0552	0.18426	0.19501	0.201	0.1005	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-09	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	GAM-A-020	RA-228	0.93875	0.24244	0.24912	0.2	0.1	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-12	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	GAM-A-020	RA-228	0.51324	0.19065	0.1933	0.255	0.1275	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-10	TLS-SB-IA5-4 (14.0-15.0) 022310D	ARS1-10-00443-023	GAM-A-020	U-234	1.3049	0.49965	0.50874	1.04	0.52	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-08	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	GAM-A-020	U-234	1.5281	0.65003	0.65995	1.39	0.695	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-09	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	GAM-A-020	U-234	1.1812	0.55392	0.56089	1.12	0.56	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-12	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	GAM-A-020	U-234	1.3867	0.50476	0.51462	0.995	0.4975	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-10	TLS-SB-IA5-4 (14.0-15.0) 022310D	ARS1-10-00443-023	GAM-A-020	U-235	0.004966	0.18353	0.18353	0.326	0.163	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-08	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	GAM-A-020	U-235	0.08788	0.2722	0.27226	0.467	0.2335	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-09	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	GAM-A-020	U-235	0.14311	0.20845	0.20867	0.357	0.1785	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-12	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	GAM-A-020	U-235	-0.02541	1.0166	1.0166	0.344	0.172	pCi	g	ARS1-B10-01415		1	U	U				
ARS1-B10-01415-10	TLS-SB-IA5-4 (14.0-15.0) 022310D	ARS1-10-00443-023	GAM-A-020	U-238	1.3049	0.49965	0.50874	1.04	0.52	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-08	TLS-SB-IA5-4 (12.0-13.0) 02231C	ARS1-10-00443-021	GAM-A-020	U-238	1.5281	0.65003	0.65995	1.39	0.695	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-09	TLS-SB-IA5-4 (14.0-15.0) 02231C	ARS1-10-00443-022	GAM-A-020	U-238	1.1812	0.55392	0.56089	1.12	0.56	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01415-12	TLS-SS-IA5-6 (0.4-0.9) 02231C	ARS1-10-00443-025	GAM-A-020	U-238	1.3867	0.50476	0.51462	0.995	0.4975	pCi	g	ARS1-B10-01415		1						
ARS1-B10-01428-20	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	GAM-A-020	AM-241	0.036292	0.088036	0.088056	0.148	0.074	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-19	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	GAM-A-020	AM-241	-0.0024	0.28242	0.28242	0.158	0.079	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-10	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	GAM-A-020	AM-241	0.017597	0.059347	0.059354	0.1	0.05	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-18	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	GAM-A-020	AM-241	-0.04496	0.13489	0.13491	0.229	0.1145	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-20	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	GAM-A-020	RA-226	3.9883	1.3816	1.3959	1.78	0.89	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-19	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	GAM-A-020	RA-226	3.4886	1.3622	1.3728	1.64	0.82	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-10	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	GAM-A-020	RA-226	1.768	0.78321	0.78796	1.03	0.515	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-18	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	GAM-A-020	RA-226	4.8316	1.8136	1.8289	2.86	1.43	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-20	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	GAM-A-020	RA-228	1.5543	0.25091	0.26856	0.233	0.1165	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-19	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	GAM-A-020	RA-228	1.2642	0.2471	0.25886	0.179	0.0895	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-10	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	GAM-A-020	RA-228	0.71717	0.12954	0.13673	0.15	0.075	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-18	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	GAM-A-020	RA-228	1.3223	0.39513	0.40328	0.512	0.256	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-19	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	GAM-A-020	U-234	1.5769	1.1575	1.1633	1.51	0.755	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-20	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	GAM-A-020	U-234	2.4352	0.77614	0.79644	1.55	0.775	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-10	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	GAM-A-020	U-234	0.53991	0.63632	0.63755	0.929	0.4645	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-18	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	GAM-A-020	U-234	4.3621	1.3049	1.3455	2.2	1.1	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-19	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	GAM-A-020	U-235	0.14882	0.2852	0.28538	0.486	0.243	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-20	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	GAM-A-020	U-235	0.20997	0.28706	0.28742	0.485	0.2425	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-10	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	GAM-A-020	U-235	0.051048	0.1718	0.17183	0.297	0.1485	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-18	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	GAM-A-020	U-235	0.24626	0.3917	0.39205	0.674	0.337	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-19	TLS-SB-IA5-14 (4.0-5.0) 02241C	ARS1-10-00463-014	GAM-A-020	U-238	1.5769	1.1575	1.1633	1.51	0.755	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-20	TLS-SB-IA5-14 (4.0-5.0) 022410D	ARS1-10-00463-015	GAM-A-020	U-238	2.4352	0.77614	0.79644	1.55	0.775	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01428-10	TLS-SB-IA5-2 (59.0-60.0) 02241C	ARS1-10-00463-005	GAM-A-020	U-238	0.53991	0.63632	0.63755	0.929	0.4645	pCi	g	ARS1-B10-01428		1	U	U				
ARS1-B10-01428-18	TLS-SS-IA5-14 (2.0-2.6) 02241C	ARS1-10-00463-013	GAM-A-020	U-238	4.3621	1.3049	1.3455	2.2	1.1	pCi	g	ARS1-B10-01428		1						
ARS1-B10-01432-07	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	GAM-A-020	AM-241	0.023642	0.097394	0.097402	0.165	0.0825	pCi	g	ARS1-B10-01432		1	U	U				
ARS1-B10-01432-08	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	GAM-A-020	AM-241	-0.00445	0.4583	0.4583	0.181	0.0905	pCi	g	ARS1-B10-01432		1	U	U				
ARS1-B10-01432-09	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	GAM-A-020	AM-241	0.022648	0.075136	0.075145	0.126	0.063	pCi	g	ARS1-B10-01432		1	U	U				
ARS1-B10-01432-07	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	GAM-A-020	RA-226	4.9594	1.353	1.3745	1.64	0.82	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-08	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	GAM-A-020	RA-226	5.8317	1.5052	1.5333	1.65	0.825	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-09	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	GAM-A-020	RA-226	1.9167	0.92394	0.92867	1.57	0.785	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-07	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	GAM-A-020	RA-228	1.0911	0.2073	0.21774	0.282	0.141	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-08	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	GAM-A-020	RA-228	2.0515	0.24827	0.27858	0.261	0.1305	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-09	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	GAM-A-020	RA-228	0.68588	0.15588	0.1614	0.152	0.076	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-07	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	GAM-A-020	U-234	2.6333	0.82644	0.84873	1.67	0.835	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-08	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	GAM-A-020	U-234	3.2258	0.89011	0.92105	1.57	0.785	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-09	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	GAM-A-020	U-234	1.4407	0.71267	0.72047	1.26	0.63	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-07	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	GAM-A-020	U-235	0.25579	0.31065	0.31113	0.519	0.2595	pCi	g	ARS1-B10-01432		1	U	U				
ARS1-B10-01432-08	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	GAM-A-020	U-235	0.16006	0.34227	0.34244	0.574	0.287	pCi	g	ARS1-B10-01432		1	U	U				
ARS1-B10-01432-09	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	GAM-A-020	U-235	0.051981	0.23932	0.23934	0.413	0.2065	pCi	g	ARS1-B10-01432		1	U	U				
ARS1-B10-01432-07	TLS-SB-IA5-14 (9.0-10.0) 02241C	ARS1-10-00463-016	GAM-A-020	U-238	2.6333	0.82644	0.84873	1.67	0.835	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-08	TLS-SB-IA5-14 (14.0-15.0) 02241C	ARS1-10-00463-017	GAM-A-020	U-238	3.2258	0.89011	0.92105	1.57	0.785	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01432-09	TLS-SB-IA5-14 (28.0-29.0) 02241C	ARS1-10-00463-018	GAM-A-020	U-238	1.4407	0.71267	0.72047	1.26	0.63	pCi	g	ARS1-B10-01432		1						
ARS1-B10-01452-20	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	GAM-A-020	AM-241	-0.01375	0.082497	0.0825	0.0898	0.0449	pCi	g	ARS1-B10-01452		1	U	U				
ARS1-B10-01452-17	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	GAM-A-020	AM-241	0.032057	0.057738	0.057764	0.0968	0.0484	pCi	g	ARS1-B10-01452		1	U	U				
ARS1-B10-01452-20	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	GAM-A-020	RA-226	1.5836	0.87914	0.88254	1.11	0.555	pCi	g	ARS1-B10-01452		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01452-17	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	GAM-A-020	RA-226	1.9667	1.0171	1.0216	1.38	0.69	pCi	g	ARS1-B10-01452		1						
ARS1-B10-01452-20	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	GAM-A-020	RA-228	0.49748	0.13058	0.13406	0.186	0.093	pCi	g	ARS1-B10-01452		1						
ARS1-B10-01452-17	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	GAM-A-020	RA-228	0.53229	0.20869	0.21121	0.372	0.186	pCi	g	ARS1-B10-01452		1						
ARS1-B10-01452-20	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	GAM-A-020	U-234	0.50278	0.5978	0.59894	0.906	0.453	pCi	g	ARS1-B10-01452		1	U	U				
ARS1-B10-01452-17	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	GAM-A-020	U-234	1.0645	0.64443	0.64938	1.03	0.515	pCi	g	ARS1-B10-01452		1						
ARS1-B10-01452-20	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	GAM-A-020	U-235	0.06227	0.1703	0.17035	0.294	0.147	pCi	g	ARS1-B10-01452		1	U	U				
ARS1-B10-01452-17	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	GAM-A-020	U-235	-0.05404	2.1617	2.1617	0.385	0.1925	pCi	g	ARS1-B10-01452		1	U	U				
ARS1-B10-01452-20	TLS-SB-IA5-1 (9.0-10.0) 02251C	ARS1-10-00464-004	GAM-A-020	U-238	0.50278	0.5978	0.59894	0.906	0.453	pCi	g	ARS1-B10-01452		1	U	U				
ARS1-B10-01452-17	TLS-SS-IA5-1 (1.8-2.4) 02251C	ARS1-10-00464-001	GAM-A-020	U-238	1.0645	0.64443	0.64938	1.03	0.515	pCi	g	ARS1-B10-01452		1						
ARS1-B10-01469-12	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	GAM-A-020	AM-241	-0.02962	0.077433	0.077448	0.13	0.065	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-07	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	GAM-A-020	AM-241	-0.00391	0.20976	0.20976	0.124	0.062	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-08	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	GAM-A-020	AM-241	0.012677	0.073217	0.07322	0.125	0.0625	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-22	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	GAM-A-020	AM-241	-0.01044	0.13474	0.13474	0.116	0.058	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-15	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	GAM-A-020	AM-241	0.005267	0.068912	0.068913	0.118	0.059	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-16	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	GAM-A-020	AM-241	0.002744	0.054891	0.054891	0.0951	0.04755	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-09	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	GAM-A-020	AM-241	-0.0048	0.44446	0.44446	0.146	0.073	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-19	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	GAM-A-020	AM-241	0.010103	0.076158	0.07616	0.129	0.0645	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-14	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	GAM-A-020	AM-241	0.020908	0.060877	0.060887	0.103	0.0515	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-12	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	GAM-A-020	RA-226	2.0377	0.90235	0.90782	1.54	0.77	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-07	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	GAM-A-020	RA-226	2.2442	1.0281	1.0342	1.34	0.67	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-08	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	GAM-A-020	RA-226	2.3244	0.9731	0.97971	1.21	0.605	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-22	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	GAM-A-020	RA-226	3.0035	1.0722	1.0822	1.33	0.665	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-15	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	GAM-A-020	RA-226	1.8638	0.87481	0.87954	1.51	0.755	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-16	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	GAM-A-020	RA-226	1.6551	0.94023	0.94371	1.2	0.6	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-09	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	GAM-A-020	RA-226	1.4616	1.0075	1.0102	1.37	0.685	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-19	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	GAM-A-020	RA-226	1.9184	1.1893	1.1932	1.51	0.755	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-14	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	GAM-A-020	RA-226	1.7821	0.98419	0.98803	1.34	0.67	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-12	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	GAM-A-020	RA-228	0.82387	0.18064	0.18751	0.193	0.0965	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-07	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	GAM-A-020	RA-228	0.80774	0.18187	0.18833	0.205	0.1025	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-08	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	GAM-A-020	RA-228	0.60665	0.16953	0.17352	0.199	0.0995	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-22	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	GAM-A-020	RA-228	1.1345	0.19838	0.21012	0.163	0.0815	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-15	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	GAM-A-020	RA-228	0.79196	0.17404	0.18063	0.161	0.0805	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-16	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	GAM-A-020	RA-228	0.65923	0.12792	0.1341	0.097	0.0485	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-09	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	GAM-A-020	RA-228	0.75801	0.17178	0.17801	0.19	0.095	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-19	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	GAM-A-020	RA-228	0.81678	0.19041	0.19672	0.147	0.0735	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-14	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	GAM-A-020	RA-228	1.0231	0.22797	0.23636	0.152	0.076	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-12	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	GAM-A-020	U-234	1.784	0.62408	0.63766	1.41	0.705	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-07	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	GAM-A-020	U-234	1.5491	0.59518	0.60629	1.23	0.615	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-08	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	GAM-A-020	U-234	0.7575	0.60645	0.60899	0.965	0.4825	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-22	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	GAM-A-020	U-234	1.9809	0.66385	0.67957	1.19	0.595	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-15	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	GAM-A-020	U-234	1.5824	0.61304	0.62394	1.33	0.665	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-16	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	GAM-A-020	U-234	0.59411	0.62733	0.62885	0.947	0.4735	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-09	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	GAM-A-020	U-234	1.2902	0.59607	0.60354	1.2	0.6	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-19	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	GAM-A-020	U-234	2.0045	0.69381	0.70974	1.36	0.68	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-14	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	GAM-A-020	U-234	1.5814	0.95843	0.96578	1.18	0.59	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-12	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	GAM-A-020	U-235	0.095802	0.22994	0.23003	0.397	0.1985	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-07	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	GAM-A-020	U-235	-0.03531	0.63563	0.63563	0.405	0.2025	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-08	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	GAM-A-020	U-235	0.11114	0.22014	0.22027	0.375	0.1875	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-22	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	GAM-A-020	U-235	0.23078	0.22461	0.22516	0.371	0.1855	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-15	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	GAM-A-020	U-235	0.22142	0.23471	0.23519	0.395	0.1975	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-16	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	GAM-A-020	U-235	-0.04053	0.78402	0.78403	0.323	0.1615	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-09	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	GAM-A-020	U-235	0.008217	0.24876	0.24876	0.431	0.2155	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-19	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	GAM-A-020	U-235	0.078652	0.25358	0.25364	0.435	0.2175	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-14	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	GAM-A-020	U-235	0.085344	0.20063	0.20071	0.346	0.173	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-12	TLS-SB-IA5-10 (8.1-9.1) 02251C	ARS1-10-00464-013	GAM-A-020	U-238	1.784	0.62408	0.63766	1.41	0.705	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-07	TLS-SB-IA5-11 (13.0-14.0) 02251C	ARS1-10-00464-008	GAM-A-020	U-238	1.5491	0.59518	0.60629	1.23	0.615	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-08	TLS-SB-IA5-11(14.0-15.0) 02251C	ARS1-10-00464-009	GAM-A-020	U-238	0.7575	0.60645	0.60899	0.965	0.4825	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-22	TLS-SB-IA5-16 (29.0-30.0) 02251C	ARS1-10-00464-023	GAM-A-020	U-238	1.9809	0.66385	0.67957	1.19	0.595	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-15	TLS-SB-IA5-9 (13.0-14.0) 02251C	ARS1-10-00464-016	GAM-A-020	U-238	1.5824	0.61304	0.62394	1.33	0.665	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-16	TLS-SB-IA5-9 (23.5-24.5) 02251C	ARS1-10-00464-017	GAM-A-020	U-238	0.59411	0.62733	0.62885	0.947	0.4735	pCi	g	ARS1-B10-01469		1	U	U				
ARS1-B10-01469-09	TLS-SS-IA5-10 (0.8-1.3) 02251C	ARS1-10-00464-010	GAM-A-020	U-238	1.2902	0.59607	0.60354	1.2	0.6	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-19	TLS-SS-IA5-16 (1.8-2.3) 02251C	ARS1-10-00464-020	GAM-A-020	U-238	2.0045	0.69381	0.70974	1.36	0.68	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01469-14	TLS-SS-IA5-9 (0.7-1.3) 02251C	ARS1-10-00464-015	GAM-A-020	U-238	1.5814	0.95843	0.96578	1.18	0.59	pCi	g	ARS1-B10-01469		1						
ARS1-B10-01496-17	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	GAM-A-020	AM-241	0.007212	0.076994	0.076995	0.131	0.0655	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-18	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	GAM-A-020	AM-241	0.033248	0.072552	0.072573	0.121	0.0605	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-19	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	GAM-A-020	AM-241	0.03611	0.071214	0.071241	0.119	0.0595	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-13	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	GAM-A-020	AM-241	0.5247	0.12998	0.13303	0.136	0.068	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-15	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	GAM-A-020	AM-241	-0.02145	0.09569	0.095697	0.123	0.0615	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-11	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	GAM-A-020	AM-241	0.03665	0.058239	0.05827	0.0975	0.04875	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-09	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	GAM-A-020	AM-241	-0.00055	0.12332	0.12332	0.11	0.055	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-05	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	GAM-A-020	AM-241	-0.0052	0.090285	0.090285	0.153	0.0765	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-06	TLS-SB-IA4-17 (6.9-7.9) 02261OD	ARS1-10-00467-003	GAM-A-020	AM-241	0.026654	0.084314	0.084326	0.142	0.071	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-07	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	GAM-A-020	AM-241	0.023469	0.080316	0.080325	0.135	0.0675	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-08	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	GAM-A-020	AM-241	-0.00728	0.68411	0.68411	0.113	0.0565	pCi	g	ARS1-B10-01496		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01496-16	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	GAM-A-020	AM-241	-0.00319	0.12755	0.12755	0.113	0.0565	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-10	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	GAM-A-020	AM-241	-0.0425	0.075945	0.07598	0.127	0.0635	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-04	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	GAM-A-020	AM-241	-0.0173	0.11474	0.11474	0.103	0.0515	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-17	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	GAM-A-020	RA-226	2.6219	1.1842	1.1915	1.5	0.75	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-18	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	GAM-A-020	RA-226	2.7991	1.228	1.2356	1.37	0.685	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-19	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	GAM-A-020	RA-226	1.4124	1.0195	1.0218	1.34	0.67	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-13	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	GAM-A-020	RA-226	1.6799	1.0151	1.0184	1.31	0.655	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-15	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	GAM-A-020	RA-226	1.5698	1.1623	1.1648	1.39	0.695	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-11	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	GAM-A-020	RA-226	2.1876	0.96149	0.96773	1.22	0.61	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-09	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	GAM-A-020	RA-226	2.3166	0.9568	0.9638	1.24	0.62	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-05	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	GAM-A-020	RA-226	4.2946	1.216	1.234	1.48	0.74	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-06	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	GAM-A-020	RA-226	4.2389	1.5444	1.5589	1.74	0.87	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-07	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	GAM-A-020	RA-226	3.6498	1.2121	1.2251	1.56	0.78	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-08	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	GAM-A-020	RA-226	1.5092	1.0973	1.0999	1.33	0.665	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-16	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	GAM-A-020	RA-226	2.2549	0.96435	0.97061	1.17	0.585	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-10	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	GAM-A-020	RA-226	2.4185	1.2362	1.2418	1.55	0.775	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-04	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	GAM-A-020	RA-226	1.2008	0.90951	0.91251	1.13	0.565	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-17	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	GAM-A-020	RA-228	0.56736	0.14375	0.14779	0.221	0.1105	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-18	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	GAM-A-020	RA-228	0.9927	0.15593	0.16728	0.141	0.0705	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-19	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	GAM-A-020	RA-228	0.88358	0.15382	0.163	0.197	0.0985	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-13	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	GAM-A-020	RA-228	0.46821	0.14105	0.14392	0.235	0.1175	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-15	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	GAM-A-020	RA-228	0.75077	0.16264	0.16897	0.17	0.085	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-11	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	GAM-A-020	RA-228	0.44863	0.15518	0.15762	0.2	0.1	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-09	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	GAM-A-020	RA-228	0.76656	0.17811	0.18406	0.165	0.0825	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-05	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	GAM-A-020	RA-228	0.92109	0.16926	0.17835	0.223	0.1115	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-06	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	GAM-A-020	RA-228	1.05	0.22284	0.23172	0.16	0.08	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-07	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	GAM-A-020	RA-228	0.54512	0.13478	0.13883	0.24	0.12	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-08	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	GAM-A-020	RA-228	0.72828	0.18636	0.19168	0.164	0.082	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-16	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	GAM-A-020	RA-228	1.0202	0.19127	0.20114	0.184	0.092	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-10	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	GAM-A-020	RA-228	0.75356	0.22952	0.23408	0.241	0.1205	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-04	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	GAM-A-020	RA-228	0.47717	0.14047	0.14357	0.246	0.123	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-17	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	GAM-A-020	U-234	1.6434	0.72913	0.73937	1.2	0.6	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-18	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	GAM-A-020	U-234	1.5476	0.65619	0.66594	1.28	0.64	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-19	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	GAM-A-020	U-234	0.95897	0.53491	0.53975	0.902	0.451	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-13	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	GAM-A-020	U-234	1.1358	0.5148	0.52183	0.927	0.4635	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-15	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	GAM-A-020	U-234	1.3619	0.89132	0.89691	1.2	0.6	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-11	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	GAM-A-020	U-234	1.0238	0.49172	0.49743	0.883	0.4415	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-09	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	GAM-A-020	U-234	1.3666	0.65592	0.6638	1.28	0.64	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-05	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	GAM-A-020	U-234	2.3301	0.74232	0.76272	1.24	0.62	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-06	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	GAM-A-020	U-234	1.6507	0.83807	0.84707	1.49	0.745	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-07	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	GAM-A-020	U-234	2.4548	0.81418	0.83387	1.38	0.69	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-08	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	GAM-A-020	U-234	1.7896	0.99383	1.0025	1.19	0.595	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-16	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	GAM-A-020	U-234	1.4105	0.4523	0.46399	0.854	0.427	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-10	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	GAM-A-020	U-234	1.3864	0.70077	0.70848	1.21	0.605	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-04	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	GAM-A-020	U-234	1.225	0.4992	0.507	0.874	0.437	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-17	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	GAM-A-020	U-235	0.13912	0.23104	0.23123	0.391	0.1955	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-18	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	GAM-A-020	U-235	0.002883	0.23585	0.23585	0.41	0.205	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-19	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	GAM-A-020	U-235	0.11423	0.2444	0.24452	0.414	0.207	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-13	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	GAM-A-020	U-235	0.034905	0.23285	0.23286	0.402	0.201	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-15	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	GAM-A-020	U-235	0.059934	0.20143	0.20147	0.346	0.173	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-11	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	GAM-A-020	U-235	0.043127	0.21867	0.21869	0.375	0.1875	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-09	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	GAM-A-020	U-235	0.034041	0.23542	0.23543	0.406	0.203	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-05	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	GAM-A-020	U-235	0.151	0.27949	0.27967	0.471	0.2355	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-06	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	GAM-A-020	U-235	0.058906	0.32076	0.32078	0.547	0.2735	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-07	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	GAM-A-020	U-235	0.1425	0.25788	0.25806	0.439	0.2195	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-08	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	GAM-A-020	U-235	0.17327	0.23326	0.23356	0.388	0.194	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-16	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	GAM-A-020	U-235	-0.02865	0.51839	0.51839	0.351	0.1755	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-10	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	GAM-A-020	U-235	-0.12251	0.63489	0.63494	0.428	0.214	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-04	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	GAM-A-020	U-235	0.014333	0.19106	0.19106	0.332	0.166	pCi	g	ARS1-B10-01496		1	U	U				
ARS1-B10-01496-17	TLS-SB-IA4-11 (12.2-13.2) 02261C	ARS1-10-00467-014	GAM-A-020	U-238	1.6434	0.72913	0.73937	1.2	0.6	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-18	TLS-SB-IA4-11 (26.0-27.0) 02261C	ARS1-10-00467-015	GAM-A-020	U-238	1.5476	0.65619	0.66594	1.28	0.64	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-19	TLS-SB-IA4-11 (27.0-28.0) 02261C	ARS1-10-00467-016	GAM-A-020	U-238	0.95897	0.53491	0.53975	0.902	0.451	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-13	TLS-SB-IA4-16 (13.0-14.0) 02261C	ARS1-10-00467-010	GAM-A-020	U-238	1.1358	0.5148	0.52183	0.927	0.4635	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-15	TLS-SB-IA4-16 (25.0-26.0) 02261C	ARS1-10-00467-012	GAM-A-020	U-238	1.3619	0.89132	0.89691	1.2	0.6	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-11	TLS-SB-IA4-16 (4.0-5.0) 02261C	ARS1-10-00467-008	GAM-A-020	U-238	1.0238	0.49172	0.49743	0.883	0.4415	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-09	TLS-SB-IA4-17 (48.0-49.0) 02261C	ARS1-10-00467-006	GAM-A-020	U-238	1.3666	0.65592	0.6638	1.28	0.64	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-05	TLS-SB-IA4-17 (6.9-7.9) 02261C	ARS1-10-00467-002	GAM-A-020	U-238	2.3301	0.74232	0.76272	1.24	0.62	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-06	TLS-SB-IA4-17 (6.9-7.9) 022610D	ARS1-10-00467-003	GAM-A-020	U-238	1.6507	0.83807	0.84707	1.49	0.745	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-07	TLS-SB-IA4-17 (7.9-8.9) 02261C	ARS1-10-00467-004	GAM-A-020	U-238	2.4548	0.81418	0.83387	1.38	0.69	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-08	TLS-SB-IA4-17 (8.9-9.9) 02261C	ARS1-10-00467-005	GAM-A-020	U-238	1.7896	0.99383	1.0025	1.19	0.595	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-16	TLS-SS-IA4-11 (0.8-1.3) 02261C	ARS1-10-00467-013	GAM-A-020	U-238	1.4105	0.4523	0.46399	0.854	0.427	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-10	TLS-SS-IA4-16 (0.2-0.7) 02261C	ARS1-10-00467-007	GAM-A-020	U-238	1.3864	0.70077	0.70848	1.21	0.605	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01496-04	TLS-SS-IA4-17 (0.5-1.0) 02261C	ARS1-10-00467-001	GAM-A-020	U-238	1.225	0.4992	0.507	0.874	0.437	pCi	g	ARS1-B10-01496		1						
ARS1-B10-01528-08	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	GAM-A-020	AM-241	-0.00547	1.9742	1.9742	0.117	0.0585	pCi	g	ARS1-B10-01528		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01528-10	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	GAM-A-020	AM-241	0.014599	0.066653	0.066658	0.113	0.0565	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-23	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	GAM-A-020	AM-241	-0.00595	0.24259	0.24259	0.122	0.061	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-21	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	GAM-A-020	AM-241	-0.01136	0.065889	0.065892	0.112	0.056	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-07	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	GAM-A-020	AM-241	0.003338	0.05412	0.05412	0.0926	0.0463	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-08	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	GAM-A-020	RA-226	1.9067	0.89858	0.90365	1.15	0.575	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-10	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	GAM-A-020	RA-226	1.5883	0.71155	0.71577	1.01	0.505	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-23	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	GAM-A-020	RA-226	1.8694	0.90141	0.90603	1.15	0.575	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-21	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	GAM-A-020	RA-226	2.6467	1.0664	1.0742	1.3	0.65	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-07	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	GAM-A-020	RA-226	1.4854	0.7623	0.76574	0.964	0.482	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-08	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	GAM-A-020	RA-228	0.84776	0.16651	0.17451	0.17	0.085	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-10	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	GAM-A-020	RA-228	0.49807	0.15036	0.1534	0.179	0.0895	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-23	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	GAM-A-020	RA-228	0.86114	0.16164	0.16997	0.202	0.101	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-21	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	GAM-A-020	RA-228	1.0745	0.18623	0.19743	0.198	0.099	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-07	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	GAM-A-020	RA-228	0.38679	0.11908	0.1214	0.18	0.09	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-08	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	GAM-A-020	U-234	1.1865	0.58697	0.59339	1.06	0.53	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-10	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	GAM-A-020	U-234	1.5862	0.49443	0.50794	1.07	0.535	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-23	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	GAM-A-020	U-234	1.1777	0.57037	0.57688	1.01	0.505	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-21	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	GAM-A-020	U-234	1.4815	0.53929	0.55068	0.884	0.442	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-07	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	GAM-A-020	U-234	0.89391	0.6281	0.63151	0.841	0.4205	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-08	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	GAM-A-020	U-235	0.10205	0.23552	0.23562	0.397	0.1985	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-10	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	GAM-A-020	U-235	-0.01158	0.292	0.292	0.347	0.1735	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-23	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	GAM-A-020	U-235	0.12993	0.21468	0.21486	0.363	0.1815	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-21	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	GAM-A-020	U-235	0.067892	0.20267	0.20272	0.348	0.174	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-07	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	GAM-A-020	U-235	-0.13168	0.3857	0.3858	0.282	0.141	pCi	g	ARS1-B10-01528		1	U	U				
ARS1-B10-01528-08	TLS-SB-IA4-4 (1.5-2.5) 03021C	ARS1-10-00468-002	GAM-A-020	U-238	1.1865	0.58697	0.59339	1.06	0.53	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-10	TLS-SB-IA4-4 (13.0-14.0) 03021C	ARS1-10-00468-004	GAM-A-020	U-238	1.5862	0.49443	0.50794	1.07	0.535	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-23	TLS-SB-IA4-18 (12.0-13.0) 03021C	ARS1-10-00468-017	GAM-A-020	U-238	1.1777	0.57037	0.57688	1.01	0.505	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-21	TLS-SS-IA4-18 (2.0-2.5) 03021C	ARS1-10-00468-015	GAM-A-020	U-238	1.4815	0.53929	0.55068	0.884	0.442	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01528-07	TLS-SS-IA4-4 (1.0-1.5) 03021C	ARS1-10-00468-001	GAM-A-020	U-238	0.89391	0.6281	0.63151	0.841	0.4205	pCi	g	ARS1-B10-01528		1						
ARS1-B10-01574-05	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	GAM-A-020	AM-241	0.063605	0.1121	0.11215	0.187	0.0935	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-21	TLS-SB-IA4-15 (2.2-3.2) 03011C	ARS1-10-00469-015	GAM-A-020	AM-241	0.033947	0.07037	0.070393	0.118	0.059	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-14	TLS-SB-IA4-7 (1.3-2.3) 03011C	ARS1-10-00469-008	GAM-A-020	AM-241	-0.01121	0.080093	0.080096	0.136	0.068	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-17	TLS-SB-IA4-7 (24.0-25.0) 03011C	ARS1-10-00469-011	GAM-A-020	AM-241	0.023483	0.074329	0.07434	0.125	0.0625	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-11	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	GAM-A-020	AM-241	0.009348	0.078698	0.078699	0.134	0.067	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-12	TLS-SB-IA4-8 (32.0-33.0) 03011C	ARS1-10-00469-006	GAM-A-020	AM-241	0.001188	0.085276	0.085276	0.145	0.0725	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-08	TLS-SB-IA4-8 (4.0-5.0) 03011C	ARS1-10-00469-002	GAM-A-020	AM-241	-0.0034	0.072235	0.072236	0.123	0.0615	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-09	TLS-SB-IA4-8 (4.0-5.0) 030110C	ARS1-10-00469-003	GAM-A-020	AM-241	0.033647	0.085106	0.085125	0.143	0.0715	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-05	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	GAM-A-020	RA-226	5.0503	1.3724	1.3955	1.72	0.86	pCi	g	ARS1-B10-01574		1			**3.23**	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-01574-21	TLS-SB-IA4-15 (2.2-3.2) 03011C	ARS1-10-00469-015	GAM-A-020	RA-226	2.3894	0.86154	0.86942	1.44	0.72	pCi	g	ARS1-B10-01574		1			**2.12**	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-01574-14	TLS-SB-IA4-7 (1.3-2.3) 03011C	ARS1-10-00469-008	GAM-A-020	RA-226	2.2151	1.0998	1.1051	1.37	0.685	pCi	g	ARS1-B10-01574		1		J	**1.52**	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-01574-17	TLS-SB-IA4-7 (24.0-25.0) 03011C	ARS1-10-00469-011	GAM-A-020	RA-226	2.2337	0.97331	0.9794	1.27	0.635	pCi	g	ARS1-B10-01574		1		J	**1.73**	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-01574-11	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	GAM-A-020	RA-226	2.8102	1.0997	1.1082	1.36	0.68	pCi	g	ARS1-B10-01574		1			**2.05**	n	n	Primary Finding > MB, Abs.Norm.Diff. > 2.0 - no bias
ARS1-B10-01574-12	TLS-SB-IA4-8 (32.0-33.0) 03011C	ARS1-10-00469-006	GAM-A-020	RA-226	2.8115	1.3184	1.3259	1.51	0.755	pCi	g	ARS1-B10-01574		1		J	**1.72**	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-01574-08	TLS-SB-IA4-8 (4.0-5.0) 03011C	ARS1-10-00469-002	GAM-A-020	RA-226	1.7062	1.1135	1.1167	1.55	0.775	pCi	g	ARS1-B10-01574		1		J	**1.06**	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-01574-09	TLS-SB-IA4-8 (4.0-5.0) 030110C	ARS1-10-00469-003	GAM-A-020	RA-226	2.778	1.303	1.31	1.58	0.79	pCi	g	ARS1-B10-01574		1		J	**1.72**	Y	n	Primary Finding > MB, Abs.Norm.Diff. < 2.0 - possible bias MB
ARS1-B10-01574-05	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	GAM-A-020	RA-228	2.127	0.29864	0.32611	0.21	0.105	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-21	TLS-SB-IA4-15 (2.2-3.2) 03011C	ARS1-10-00469-015	GAM-A-020	RA-228	0.76694	0.19012	0.19579	0.201	0.1005	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-14	TLS-SB-IA4-7 (1.3-2.3) 03011C	ARS1-10-00469-008	GAM-A-020	RA-228	1.0364	0.18216	0.19283	0.21	0.105	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-17	TLS-SB-IA4-7 (24.0-25.0) 03011C	ARS1-10-00469-011	GAM-A-020	RA-228	1.1806	0.20438	0.21671	0.116	0.058	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-11	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	GAM-A-020	RA-228	1.0329	0.19145	0.20156	0.194	0.097	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-12	TLS-SB-IA4-8 (32.0-33.0) 03011C	ARS1-10-00469-006	GAM-A-020	RA-228	0.70569	0.21335	0.21773	0.279	0.1395	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-08	TLS-SB-IA4-8 (4.0-5.0) 03011C	ARS1-10-00469-002	GAM-A-020	RA-228	0.97595	0.22907	0.23669	0.195	0.0975	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-09	TLS-SB-IA4-8 (4.0-5.0) 030110C	ARS1-10-00469-003	GAM-A-020	RA-228	1.2744	0.21339	0.22712	0.171	0.0855	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-05	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	GAM-A-020	U-234	2.3414	0.93726	0.95288	1.61	0.805	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-21	TLS-SB-IA4-15 (2.2-3.2) 03011C	ARS1-10-00469-015	GAM-A-020	U-234	1.6586	0.70355	0.714	1.44	0.72	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-14	TLS-SB-IA4-7 (1.3-2.3) 03011C	ARS1-10-00469-008	GAM-A-020	U-234	1.2195	0.67087	0.6771	1.19	0.595	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-17	TLS-SB-IA4-7 (24.0-25.0) 03011C	ARS1-10-00469-011	GAM-A-020	U-234	1.4246	0.61827	0.62748	1.09	0.545	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-11	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	GAM-A-020	U-234	1.1947	0.61731	0.62351	1.18	0.59	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-12	TLS-SB-IA4-8 (32.0-33.0) 03011C	ARS1-10-00469-006	GAM-A-020	U-234	1.791	0.67963	0.69222	1.21	0.605	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-08	TLS-SB-IA4-8 (4.0-5.0) 03011C	ARS1-10-00469-002	GAM-A-020	U-234	2.0458	0.57075	0.59017	1.36	0.68	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-09	TLS-SB-IA4-8 (4.0-5.0) 030110C	ARS1-10-00469-003	GAM-A-020	U-234	1.4254	0.72029	0.72822	1.27	0.635	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-05	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	GAM-A-020	U-235	0.30185	0.39777	0.3983	0.66	0.33	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-21	TLS-SB-IA4-15 (2.2-3.2) 03011C	ARS1-10-00469-015	GAM-A-020	U-235	0.094945	0.24443	0.24452	0.42	0.21	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-14	TLS-SB-IA4-7 (1.3-2.3) 03011C	ARS1-10-00469-008	GAM-A-020	U-235	0.05219	0.23462	0.23465	0.405	0.2025	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-17	TLS-SB-IA4-7 (24.0-25.0) 03011C	ARS1-10-00469-011	GAM-A-020	U-235	0.005771	0.23416	0.23416	0.407	0.2035	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-11	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	GAM-A-020	U-235	0.076607	0.2176	0.21767	0.374	0.187	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-12	TLS-SB-IA4-8 (32.0-33.0) 03011C	ARS1-10-00469-006	GAM-A-020	U-235	0.057136	0.2434	0.24343	0.416	0.208	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-08	TLS-SB-IA4-8 (4.0-5.0) 03011C	ARS1-10-00469-002	GAM-A-020	U-235	0.17525	0.24426	0.24455	0.415	0.2075	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-09	TLS-SB-IA4-8 (4.0-5.0) 030110C	ARS1-10-00469-003	GAM-A-020	U-235	-0.05121	2.0482	2.0482	0.534	0.267	pCi	g	ARS1-B10-01574		1	U	U				
ARS1-B10-01574-05	TLS-SB-IA4-18 (24.0-25.0) 03021C	ARS1-10-00468-018	GAM-A-020	U-238	2.3414	0.93726	0.95288	1.61	0.805	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-21	TLS-SB-IA4-15 (2.2-3.2) 03011C	ARS1-10-00469-015	GAM-A-020	U-238	1.6586	0.70355	0.714	1.44	0.72	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-14	TLS-SB-IA4-7 (1.3-2.3) 03011C	ARS1-10-00469-008	GAM-A-020	U-238	1.2195	0.67087	0.6771	1.19	0.595	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-17	TLS-SB-IA4-7 (24.0-25.0) 03011C	ARS1-10-00469-011	GAM-A-020	U-238	1.4246	0.61827	0.62748	1.09	0.545	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-11	TLS-SB-IA4-8 (29.6-30.6) 03011C	ARS1-10-00469-005	GAM-A-020	U-238	1.1947	0.61731	0.62351	1.18	0.59	pCi	g	ARS1-B10-01574		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01574-12	TLS-SB-IA4-8 (32.0-33.0) 030110	ARS1-10-00469-006	GAM-A-020	U-238	1.791	0.67963	0.69222	1.21	0.605	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-08	TLS-SB-IA4-8 (4.0-5.0) 030110	ARS1-10-00469-002	GAM-A-020	U-238	2.0458	0.57075	0.59017	1.36	0.68	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01574-09	TLS-SB-IA4-8 (4.0-5.0) 030110D	ARS1-10-00469-003	GAM-A-020	U-238	1.4254	0.72029	0.72822	1.27	0.635	pCi	g	ARS1-B10-01574		1						
ARS1-B10-01578-10	TLS-SB-IA4-19 (21.8-22.8) 030110	ARS1-10-00469-020	GAM-A-020	AM-241	-0.00383	0.36447	0.36447	0.14	0.07	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-12	TLS-SB-IA4-19 (28.0-29.0) 030110	ARS1-10-00469-022	GAM-A-020	AM-241	0.04546	0.05382	0.053872	0.0887	0.04435	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-14	TLS-SB-IA4-10 (2.0-3.0) 030310	ARS1-10-00473-002	GAM-A-020	AM-241	0.019031	0.067374	0.067381	0.114	0.057	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-15	TLS-SB-IA4-10 (3.0-4.0) 030310	ARS1-10-00473-003	GAM-A-020	AM-241	-0.00643	5.0274	5.0274	0.139	0.0695	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-16	TLS-SB-IA4-10 (4.0-5.0) 030310	ARS1-10-00473-004	GAM-A-020	AM-241	-0.00923	0.12554	0.12554	0.137	0.0685	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-17	TLS-SB-IA4-10 (7.8-8.8) 030310	ARS1-10-00473-005	GAM-A-020	AM-241	0.009305	0.079179	0.079181	0.135	0.0675	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-19	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	GAM-A-020	AM-241	-0.04321	0.10762	0.10764	0.152	0.076	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-13	TLS-SS-IA4-10 (0.6-1.1) 030310	ARS1-10-00473-001	GAM-A-020	AM-241	0.000902	0.064593	0.064593	0.111	0.0555	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-18	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	GAM-A-020	AM-241	0.014639	0.082404	0.082408	0.14	0.07	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-10	TLS-SB-IA4-19 (21.8-22.8) 030110	ARS1-10-00469-020	GAM-A-020	RA-226	2.7301	1.2767	1.284	1.44	0.72	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-12	TLS-SB-IA4-19 (28.0-29.0) 030110	ARS1-10-00469-022	GAM-A-020	RA-226	1.4662	0.66144	0.66531	0.924	0.462	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-14	TLS-SB-IA4-10 (2.0-3.0) 030310	ARS1-10-00473-002	GAM-A-020	RA-226	1.7721	1.0364	1.04	1.26	0.63	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-15	TLS-SB-IA4-10 (3.0-4.0) 030310	ARS1-10-00473-003	GAM-A-020	RA-226	2.8164	1.0729	1.0821	1.31	0.655	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-16	TLS-SB-IA4-10 (4.0-5.0) 030310	ARS1-10-00473-004	GAM-A-020	RA-226	3.2403	1.3355	1.3453	1.68	0.84	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-17	TLS-SB-IA4-10 (7.8-8.8) 030310	ARS1-10-00473-005	GAM-A-020	RA-226	3.976	1.192	1.2077	1.39	0.695	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-19	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	GAM-A-020	RA-226	1.6226	1.3697	1.372	1.6	0.8	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-13	TLS-SS-IA4-10 (0.6-1.1) 030310	ARS1-10-00473-001	GAM-A-020	RA-226	1.8347	0.87043	0.87503	1.26	0.63	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-18	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	GAM-A-020	RA-226	2.2442	1.1204	1.1258	1.42	0.71	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-10	TLS-SB-IA4-19 (21.8-22.8) 030110	ARS1-10-00469-020	GAM-A-020	RA-228	1.0095	0.17672	0.18734	0.215	0.1075	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-12	TLS-SB-IA4-19 (28.0-29.0) 030110	ARS1-10-00469-022	GAM-A-020	RA-228	0.55651	0.13852	0.14262	0.129	0.0645	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-14	TLS-SB-IA4-10 (2.0-3.0) 030310	ARS1-10-00473-002	GAM-A-020	RA-228	0.62185	0.17356	0.17766	0.208	0.104	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-15	TLS-SB-IA4-10 (3.0-4.0) 030310	ARS1-10-00473-003	GAM-A-020	RA-228	1.1298	0.23443	0.24454	0.178	0.089	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-16	TLS-SB-IA4-10 (4.0-5.0) 030310	ARS1-10-00473-004	GAM-A-020	RA-228	0.92409	0.18638	0.19459	0.226	0.113	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-17	TLS-SB-IA4-10 (7.8-8.8) 030310	ARS1-10-00473-005	GAM-A-020	RA-228	1.065	0.18327	0.19445	0.225	0.1125	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-19	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	GAM-A-020	RA-228	1.2437	0.22152	0.23416	0.164	0.082	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-13	TLS-SS-IA4-10 (0.6-1.1) 030310	ARS1-10-00473-001	GAM-A-020	RA-228	0.92196	0.21351	0.2208	0.158	0.079	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-18	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	GAM-A-020	RA-228	1.0213	0.21342	0.22234	0.154	0.077	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-10	TLS-SB-IA4-19 (21.8-22.8) 030110	ARS1-10-00469-020	GAM-A-020	U-234	1.3222	0.65008	0.65728	1.16	0.58	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-12	TLS-SB-IA4-19 (28.0-29.0) 030110	ARS1-10-00469-022	GAM-A-020	U-234	1.319	0.51174	0.52081	0.896	0.448	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-14	TLS-SB-IA4-10 (2.0-3.0) 030310	ARS1-10-00473-002	GAM-A-020	U-234	1.2609	0.62939	0.63615	1.19	0.595	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-15	TLS-SB-IA4-10 (3.0-4.0) 030310	ARS1-10-00473-003	GAM-A-020	U-234	1.4315	0.67361	0.68175	1.13	0.565	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-16	TLS-SB-IA4-10 (4.0-5.0) 030310	ARS1-10-00473-004	GAM-A-020	U-234	1.455	1.045	1.0506	1.44	0.72	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-17	TLS-SB-IA4-10 (7.8-8.8) 030310	ARS1-10-00473-005	GAM-A-020	U-234	1.421	0.86787	0.87412	1.27	0.635	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-19	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	GAM-A-020	U-234	1.5586	0.67853	0.6881	1.28	0.64	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-13	TLS-SS-IA4-10 (0.6-1.1) 030310	ARS1-10-00473-001	GAM-A-020	U-234	0.9276	0.60466	0.60867	0.913	0.4565	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-18	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	GAM-A-020	U-234	1.4946	0.67684	0.68611	1.19	0.595	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-10	TLS-SB-IA4-19 (21.8-22.8) 030110	ARS1-10-00469-020	GAM-A-020	U-235	0.093695	0.24672	0.24681	0.417	0.2085	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-12	TLS-SB-IA4-19 (28.0-29.0) 030110	ARS1-10-00469-022	GAM-A-020	U-235	0.049355	0.1834	0.18343	0.317	0.1585	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-14	TLS-SB-IA4-10 (2.0-3.0) 030310	ARS1-10-00473-002	GAM-A-020	U-235	-0.06703	5.0127	5.0127	0.317	0.1585	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-15	TLS-SB-IA4-10 (3.0-4.0) 030310	ARS1-10-00473-003	GAM-A-020	U-235	0.053965	0.2627	0.26273	0.447	0.2235	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-16	TLS-SB-IA4-10 (4.0-5.0) 030310	ARS1-10-00473-004	GAM-A-020	U-235	0.093935	0.27181	0.27189	0.464	0.232	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-17	TLS-SB-IA4-10 (7.8-8.8) 030310	ARS1-10-00473-005	GAM-A-020	U-235	0.080315	0.25288	0.25294	0.433	0.2165	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-19	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	GAM-A-020	U-235	0.050512	0.23224	0.23227	0.401	0.2005	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-13	TLS-SS-IA4-10 (0.6-1.1) 030310	ARS1-10-00473-001	GAM-A-020	U-235	0.11179	0.21544	0.21557	0.368	0.184	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-18	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	GAM-A-020	U-235	-0.04546	25.58	25.58	0.443	0.2215	pCi	g	ARS1-B10-01578		1	U	U				
ARS1-B10-01578-10	TLS-SB-IA4-19 (21.8-22.8) 030110	ARS1-10-00469-020	GAM-A-020	U-238	1.3222	0.65008	0.65728	1.16	0.58	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-12	TLS-SB-IA4-19 (28.0-29.0) 030110	ARS1-10-00469-022	GAM-A-020	U-238	1.319	0.51174	0.52081	0.896	0.448	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-14	TLS-SB-IA4-10 (2.0-3.0) 030310	ARS1-10-00473-002	GAM-A-020	U-238	1.2609	0.62939	0.63615	1.19	0.595	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-15	TLS-SB-IA4-10 (3.0-4.0) 030310	ARS1-10-00473-003	GAM-A-020	U-238	1.4315	0.67361	0.68175	1.13	0.565	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-16	TLS-SB-IA4-10 (4.0-5.0) 030310	ARS1-10-00473-004	GAM-A-020	U-238	1.455	1.045	1.0506	1.44	0.72	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-17	TLS-SB-IA4-10 (7.8-8.8) 030310	ARS1-10-00473-005	GAM-A-020	U-238	1.421	0.86787	0.87412	1.27	0.635	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-19	TLS-SB-IA4-3 (6.0-7.0) 030310	ARS1-10-00473-007	GAM-A-020	U-238	1.5586	0.67853	0.6881	1.28	0.64	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-13	TLS-SS-IA4-10 (0.6-1.1) 030310	ARS1-10-00473-001	GAM-A-020	U-238	0.9276	0.60466	0.60867	0.913	0.4565	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01578-18	TLS-SS-IA4-3 (0.5-1.0) 030310	ARS1-10-00473-006	GAM-A-020	U-238	1.4946	0.67684	0.68611	1.19	0.595	pCi	g	ARS1-B10-01578		1						
ARS1-B10-01600-08	TLS-SB-IA4-3 (10.0-11.0) 030310	ARS1-10-00473-009	GAM-A-020	AM-241	0.014197	0.077648	0.077652	0.132	0.066	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-15	TLS-SB-IA4-9 (1.8-2.8) 030310	ARS1-10-00473-016	GAM-A-020	AM-241	0.010925	0.085428	0.08543	0.145	0.0725	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-16	TLS-SB-IA4-9 (2.8-3.8) 030310	ARS1-10-00473-017	GAM-A-020	AM-241	-0.00342	0.13696	0.13696	0.146	0.073	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-17	TLS-SB-IA4-9 (9.0-10.0) 030310	ARS1-10-00473-018	GAM-A-020	AM-241	0.004078	0.079479	0.079479	0.135	0.0675	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-18	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	GAM-A-020	AM-241	0.013561	0.076832	0.076835	0.13	0.065	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-20	TLS-SS-IA4-1 (1.2-1.7) 030310	ARS1-10-00473-021	GAM-A-020	AM-241	0.003741	0.056841	0.056841	0.0989	0.04945	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-08	TLS-SB-IA4-3 (10.0-11.0) 030310	ARS1-10-00473-009	GAM-A-020	RA-226	1.9728	1.0479	1.0526	1.3	0.65	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-15	TLS-SB-IA4-9 (1.8-2.8) 030310	ARS1-10-00473-016	GAM-A-020	RA-226	2.5131	0.96336	0.97157	1.26	0.63	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-16	TLS-SB-IA4-9 (2.8-3.8) 030310	ARS1-10-00473-017	GAM-A-020	RA-226	2.1746	1.1687	1.1736	1.54	0.77	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-17	TLS-SB-IA4-9 (9.0-10.0) 030310	ARS1-10-00473-018	GAM-A-020	RA-226	2.7218	1.2197	1.2269	1.51	0.755	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-18	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	GAM-A-020	RA-226	2.0332	0.90704	0.91246	1.18	0.59	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-20	TLS-SS-IA4-1 (1.2-1.7) 030310	ARS1-10-00473-021	GAM-A-020	RA-226	2.7311	1.1984	1.2102	1.37	0.685	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-08	TLS-SB-IA4-3 (10.0-11.0) 030310	ARS1-10-00473-009	GAM-A-020	RA-228	0.89166	0.15559	0.165	0.114	0.057	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-15	TLS-SB-IA4-9 (1.8-2.8) 030310	ARS1-10-00473-016	GAM-A-020	RA-228	1.2589	0.2435	0.25555	0.198	0.099	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-16	TLS-SB-IA4-9 (2.8-3.8) 030310	ARS1-10-00473-017	GAM-A-020	RA-228	1.2563	0.22016	0.23313	0.148	0.074	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-17	TLS-SB-IA4-9 (9.0-10.0) 030310	ARS1-10-00473-018	GAM-A-020	RA-228	1.1338	0.17828	0.19123	0.193	0.0965	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-18	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	GAM-A-020	RA-228	1.0771	0.17589	0.18777	0.152	0.076	pCi	g	ARS1-B10-01600		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01600-20	TLS-SS-IA4-1 (1.2-1.7) 03031C	ARS1-10-00473-021	GAM-A-020	RA-228	0.358	0.15834	0.15989	0.286	0.143	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-08	TLS-SB-IA4-3 (10.0-11.0) 03031C	ARS1-10-00473-009	GAM-A-020	U-234	1.3936	0.62662	0.63491	1.11	0.555	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-15	TLS-SB-IA4-9 (1.8-2.8) 03031C	ARS1-10-00473-016	GAM-A-020	U-234	1.79	0.67537	0.68803	1.26	0.63	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-16	TLS-SB-IA4-9 (2.8-3.8) 03031C	ARS1-10-00473-017	GAM-A-020	U-234	1.8179	0.77259	0.78403	1.42	0.71	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-17	TLS-SB-IA4-9 (9.0-10.0) 03031C	ARS1-10-00473-018	GAM-A-020	U-234	1.3555	0.8732	0.87913	1.19	0.595	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-18	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	GAM-A-020	U-234	1.7491	0.58023	0.59426	1.22	0.61	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-20	TLS-SS-IA4-1 (1.2-1.7) 03031C	ARS1-10-00473-021	GAM-A-020	U-234	1.2003	0.56504	0.57167	1.01	0.505	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-08	TLS-SB-IA4-3 (10.0-11.0) 03031C	ARS1-10-00473-009	GAM-A-020	U-235	0.088815	0.24727	0.24734	0.42	0.21	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-15	TLS-SB-IA4-9 (1.8-2.8) 03031C	ARS1-10-00473-016	GAM-A-020	U-235	-0.13907	0.41324	0.41335	0.467	0.2335	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-16	TLS-SB-IA4-9 (2.8-3.8) 03031C	ARS1-10-00473-017	GAM-A-020	U-235	0.060773	0.23655	0.23659	0.407	0.2035	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-17	TLS-SB-IA4-9 (9.0-10.0) 03031C	ARS1-10-00473-018	GAM-A-020	U-235	0.087345	0.24153	0.2416	0.412	0.206	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-18	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	GAM-A-020	U-235	0.047906	0.23772	0.23775	0.409	0.2045	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-20	TLS-SS-IA4-1 (1.2-1.7) 03031C	ARS1-10-00473-021	GAM-A-020	U-235	0.10105	0.23027	0.23044	0.392	0.196	pCi	g	ARS1-B10-01600		1	U	U				
ARS1-B10-01600-08	TLS-SB-IA4-3 (10.0-11.0) 03031C	ARS1-10-00473-009	GAM-A-020	U-238	1.3936	0.62662	0.63491	1.11	0.555	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-15	TLS-SB-IA4-9 (1.8-2.8) 03031C	ARS1-10-00473-016	GAM-A-020	U-238	1.79	0.67537	0.68803	1.26	0.63	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-16	TLS-SB-IA4-9 (2.8-3.8) 03031C	ARS1-10-00473-017	GAM-A-020	U-238	1.8179	0.77259	0.78403	1.42	0.71	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-17	TLS-SB-IA4-9 (9.0-10.0) 03031C	ARS1-10-00473-018	GAM-A-020	U-238	1.3555	0.8732	0.87913	1.19	0.595	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-18	TLS-SB-IA4-9 (9.0-10.0) 030310D	ARS1-10-00473-019	GAM-A-020	U-238	1.7491	0.58023	0.59426	1.22	0.61	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01600-20	TLS-SS-IA4-1 (1.2-1.7) 03031C	ARS1-10-00473-021	GAM-A-020	U-238	1.2003	0.56504	0.57167	1.01	0.505	pCi	g	ARS1-B10-01600		1						
ARS1-B10-01626-04	TLS-SB-IA4-1 (3.0-4.0) 03031C	ARS1-10-00473-022	GAM-A-020	AM-241	-0.00587	0.23464	0.23464	0.105	0.0525	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-05	TLS-SB-IA4-1 (8.0-9.0) 03031C	ARS1-10-00473-023	GAM-A-020	AM-241	-6.9E-05	0.062581	0.062581	0.103	0.0515	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-09	TLS-SB-IA4-5 (4.0-5.0) 03031C	ARS1-10-00473-027	GAM-A-020	AM-241	0.000227	0.069741	0.069741	0.12	0.06	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-10	TLS-SB-IA4-5 (8.0-9.0) 03031C	ARS1-10-00473-028	GAM-A-020	AM-241	-0.02266	0.11205	0.11206	0.139	0.0695	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-23	TLS-SB-IA3FL-5 (2.4-3.4)03041C	ARS1-10-00492-012	GAM-A-020	AM-241	-1.9E-05	0.077782	0.077782	0.133	0.0665	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-17	TLS-SB-IA3FL-6 (1.4-2.4)03041C	ARS1-10-00492-006	GAM-A-020	AM-241	0.054696	0.071807	0.071864	0.119	0.0595	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-20	TLS-SB-IA3FL-6 (13.0-14.0)03041C	ARS1-10-00492-009	GAM-A-020	AM-241	0.007953	0.065825	0.065826	0.112	0.056	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-19	TLS-SB-IA3FL-6 (8.4-9.4)03041C	ARS1-10-00492-008	GAM-A-020	AM-241	0.029529	0.052025	0.052048	0.087	0.0435	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-15	TLS-SB-IA4-6 (17.0-18.0)03041C	ARS1-10-00492-004	GAM-A-020	AM-241	0.051345	0.064882	0.064937	0.107	0.0535	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-13	TLS-SB-IA4-6 (8.0-9.0)03041C	ARS1-10-00492-002	GAM-A-020	AM-241	-0.00649	0.25961	0.25961	0.138	0.069	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-22	TLS-SS-IA3FL-5 (1.5-2.0)03041C	ARS1-10-00492-011	GAM-A-020	AM-241	-0.01424	0.18365	0.18366	0.124	0.062	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-16	TLS-SS-IA3FL-6 (0.6-1.1)03041C	ARS1-10-00492-005	GAM-A-020	AM-241	0.035144	0.055304	0.055336	0.092	0.046	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-04	TLS-SB-IA4-1 (3.0-4.0) 03031C	ARS1-10-00473-022	GAM-A-020	RA-226	2.5082	1.1014	1.1086	1.25	0.625	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-05	TLS-SB-IA4-1 (8.0-9.0) 03031C	ARS1-10-00473-023	GAM-A-020	RA-226	1.698	0.92454	0.92825	1.19	0.595	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-09	TLS-SB-IA4-5 (4.0-5.0) 03031C	ARS1-10-00473-027	GAM-A-020	RA-226	2.0072	0.97355	0.97848	1.28	0.64	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-10	TLS-SB-IA4-5 (8.0-9.0) 03031C	ARS1-10-00473-028	GAM-A-020	RA-226	1.908	1.0605	1.0646	1.33	0.665	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-23	TLS-SB-IA3FL-5 (2.4-3.4)03041C	ARS1-10-00492-012	GAM-A-020	RA-226	2.2413	1.0334	1.0392	1.41	0.705	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-17	TLS-SB-IA3FL-6 (1.4-2.4)03041C	ARS1-10-00492-006	GAM-A-020	RA-226	2.5602	1.093	1.1001	1.4	0.7	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-20	TLS-SB-IA3FL-6 (13.0-14.0)03041C	ARS1-10-00492-009	GAM-A-020	RA-226	2.4275	1.012	1.0193	1.24	0.62	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-19	TLS-SB-IA3FL-6 (8.4-9.4)03041C	ARS1-10-00492-008	GAM-A-020	RA-226	1.2098	0.85591	0.85795	1.07	0.535	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-15	TLS-SB-IA4-6 (17.0-18.0)03041C	ARS1-10-00492-004	GAM-A-020	RA-226	2.0436	1.1218	1.1262	1.33	0.665	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-13	TLS-SB-IA4-6 (8.0-9.0)03041C	ARS1-10-00492-002	GAM-A-020	RA-226	2.8852	1.065	1.0748	1.46	0.73	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-22	TLS-SS-IA3FL-5 (1.5-2.0)03041C	ARS1-10-00492-011	GAM-A-020	RA-226	2.2867	0.89424	0.90527	1.16	0.58	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-16	TLS-SS-IA3FL-6 (0.6-1.1)03041C	ARS1-10-00492-005	GAM-A-020	RA-226	1.944	0.80721	0.81305	1.06	0.53	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-04	TLS-SB-IA4-1 (3.0-4.0) 03031C	ARS1-10-00473-022	GAM-A-020	RA-228	0.84202	0.1595	0.16772	0.103	0.0515	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-05	TLS-SB-IA4-1 (8.0-9.0) 03031C	ARS1-10-00473-023	GAM-A-020	RA-228	0.57844	0.11715	0.12235	0.208	0.104	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-09	TLS-SB-IA4-5 (4.0-5.0) 03031C	ARS1-10-00473-027	GAM-A-020	RA-228	0.68675	0.14175	0.14781	0.181	0.0905	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-10	TLS-SB-IA4-5 (8.0-9.0) 03031C	ARS1-10-00473-028	GAM-A-020	RA-228	1.1225	0.18711	0.19926	0.189	0.0945	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-23	TLS-SB-IA3FL-5 (2.4-3.4)03041C	ARS1-10-00492-012	GAM-A-020	RA-228	0.94846	0.17181	0.1813	0.214	0.107	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-17	TLS-SB-IA3FL-6 (1.4-2.4)03041C	ARS1-10-00492-006	GAM-A-020	RA-228	0.60156	0.15525	0.15953	0.226	0.113	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-20	TLS-SB-IA3FL-6 (13.0-14.0)03041C	ARS1-10-00492-009	GAM-A-020	RA-228	0.782	0.22102	0.22603	0.166	0.083	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-19	TLS-SB-IA3FL-6 (8.4-9.4)03041C	ARS1-10-00492-008	GAM-A-020	RA-228	0.61713	0.12246	0.12812	0.0754	0.0377	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-15	TLS-SB-IA4-6 (17.0-18.0)03041C	ARS1-10-00492-004	GAM-A-020	RA-228	0.72756	0.15048	0.1569	0.146	0.073	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-13	TLS-SB-IA4-6 (8.0-9.0)03041C	ARS1-10-00492-002	GAM-A-020	RA-228	1.3237	0.2559	0.26857	0.177	0.0885	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-22	TLS-SS-IA3FL-5 (1.5-2.0)03041C	ARS1-10-00492-011	GAM-A-020	RA-228	0.82931	0.17745	0.18479	0.203	0.1015	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-16	TLS-SS-IA3FL-6 (0.6-1.1)03041C	ARS1-10-00492-005	GAM-A-020	RA-228	0.5032	0.12629	0.12991	0.141	0.0705	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-04	TLS-SB-IA4-1 (3.0-4.0) 03031C	ARS1-10-00473-022	GAM-A-020	U-234	1.0877	0.57944	0.58491	1.03	0.515	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-05	TLS-SB-IA4-1 (8.0-9.0) 03031C	ARS1-10-00473-023	GAM-A-020	U-234	1.1125	0.45573	0.46299	1.03	0.515	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-09	TLS-SB-IA4-5 (4.0-5.0) 03031C	ARS1-10-00473-027	GAM-A-020	U-234	1.3311	0.54488	0.554	1.03	0.515	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-10	TLS-SB-IA4-5 (8.0-9.0) 03031C	ARS1-10-00473-028	GAM-A-020	U-234	1.2883	0.63211	0.63914	1.19	0.595	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-23	TLS-SB-IA3FL-5 (2.4-3.4)03041C	ARS1-10-00492-012	GAM-A-020	U-234	1.8798	0.72731	0.74092	1.18	0.59	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-17	TLS-SB-IA3FL-6 (1.4-2.4)03041C	ARS1-10-00492-006	GAM-A-020	U-234	1.3861	0.7431	0.75003	1.29	0.645	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-20	TLS-SB-IA3FL-6 (13.0-14.0)03041C	ARS1-10-00492-009	GAM-A-020	U-234	1.3487	0.52555	0.5351	1.33	0.665	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-19	TLS-SB-IA3FL-6 (8.4-9.4)03041C	ARS1-10-00492-008	GAM-A-020	U-234	0.9233	0.52531	0.52966	0.856	0.428	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-15	TLS-SB-IA4-6 (17.0-18.0)03041C	ARS1-10-00492-004	GAM-A-020	U-234	1.0004	0.68039	0.68434	0.991	0.4955	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-13	TLS-SB-IA4-6 (8.0-9.0)03041C	ARS1-10-00492-002	GAM-A-020	U-234	1.7687	0.73768	0.74901	1.26	0.63	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-22	TLS-SS-IA3FL-5 (1.5-2.0)03041C	ARS1-10-00492-011	GAM-A-020	U-234	1.2006	0.53028	0.53734	1.12	0.56	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-16	TLS-SS-IA3FL-6 (0.6-1.1)03041C	ARS1-10-00492-005	GAM-A-020	U-234	1.2689	0.52991	0.5383	1.01	0.505	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-04	TLS-SB-IA4-1 (3.0-4.0) 03031C	ARS1-10-00473-022	GAM-A-020	U-235	0.13495	0.21516	0.21536	0.36	0.18	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-05	TLS-SB-IA4-1 (8.0-9.0) 03031C	ARS1-10-00473-023	GAM-A-020	U-235	0.039512	0.19133	0.19135	0.333	0.1665	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-09	TLS-SB-IA4-5 (4.0-5.0) 03031C	ARS1-10-00473-027	GAM-A-020	U-235	0.21362	0.204	0.20452	0.336	0.168	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-10	TLS-SB-IA4-5 (8.0-9.0) 03031C	ARS1-10-00473-028	GAM-A-020	U-235	0.039263	0.2207	0.22072	0.382	0.191	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-23	TLS-SB-IA3FL-5 (2.4-3.4)03041C	ARS1-10-00492-012	GAM-A-020	U-235	0.016754	0.25976	0.25976	0.45	0.225	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-17	TLS-SB-IA3FL-6 (1.4-2.4)03041C	ARS1-10-00492-006	GAM-A-020	U-235	-0.0642	6.8184	6.8184	0.408	0.204	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-20	TLS-SB-IA3FL-6 (13.0-14.0)03041C	ARS1-10-00492-009	GAM-A-020	U-235	0.056237	0.22213	0.22217	0.382	0.191	pCi	g	ARS1-B10-01626		1	U	U				

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01626-19	TLS-SB-IA3FL-6 (8.4-9.4)030410	ARS1-10-00492-008	GAM-A-020	U-235	-0.02633	0.54245	0.54245	0.298	0.149	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-15	TLS-SB-IA4-6 (17.0-18.0)030410	ARS1-10-00492-004	GAM-A-020	U-235	0.091075	0.20931	0.20941	0.359	0.1795	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-13	TLS-SB-IA4-6 (8.0-9.0)030410	ARS1-10-00492-002	GAM-A-020	U-235	0.1068	0.24622	0.24633	0.416	0.208	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-22	TLS-SS-IA3FL-5 (1.5-2.0)030410	ARS1-10-00492-011	GAM-A-020	U-235	-0.07421	0.5169	0.51694	0.401	0.2005	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-16	TLS-SS-IA3FL-6 (0.6-1.1)030410	ARS1-10-00492-005	GAM-A-020	U-235	0.023393	0.19416	0.19417	0.337	0.1685	pCi	g	ARS1-B10-01626		1	U	U				
ARS1-B10-01626-04	TLS-SB-IA4-1 (3.0-4.0) 030310	ARS1-10-00473-022	GAM-A-020	U-238	1.0877	0.57944	0.58491	1.03	0.515	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-05	TLS-SB-IA4-1 (8.0-9.0) 030310	ARS1-10-00473-023	GAM-A-020	U-238	1.1125	0.45573	0.46299	1.03	0.515	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-09	TLS-SB-IA4-5 (4.0-5.0) 030310	ARS1-10-00473-027	GAM-A-020	U-238	1.3311	0.54488	0.554	1.03	0.515	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-10	TLS-SB-IA4-5 (8.0-9.0) 030310	ARS1-10-00473-028	GAM-A-020	U-238	1.2883	0.63211	0.63914	1.19	0.595	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-23	TLS-SB-IA3FL-5 (2.4-3.4)030410	ARS1-10-00492-012	GAM-A-020	U-238	1.8798	0.72731	0.74092	1.18	0.59	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-17	TLS-SB-IA3FL-6 (1.4-2.4)030410	ARS1-10-00492-006	GAM-A-020	U-238	1.3861	0.7431	0.75003	1.29	0.645	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-20	TLS-SB-IA3FL-6 (13.0-14.0)030410	ARS1-10-00492-009	GAM-A-020	U-238	1.3487	0.52555	0.5351	1.33	0.665	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-19	TLS-SB-IA3FL-6 (8.4-9.4)030410	ARS1-10-00492-008	GAM-A-020	U-238	0.9233	0.52531	0.52966	0.856	0.428	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-15	TLS-SB-IA4-6 (17.0-18.0)030410	ARS1-10-00492-004	GAM-A-020	U-238	1.0004	0.68039	0.68434	0.991	0.4955	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-13	TLS-SB-IA4-6 (8.0-9.0)030410	ARS1-10-00492-002	GAM-A-020	U-238	1.7687	0.73768	0.74901	1.26	0.63	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-22	TLS-SS-IA3FL-5 (1.5-2.0)030410	ARS1-10-00492-011	GAM-A-020	U-238	1.2006	0.53028	0.53734	1.12	0.56	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01626-16	TLS-SS-IA3FL-6 (0.6-1.1)030410	ARS1-10-00492-005	GAM-A-020	U-238	1.2689	0.52991	0.5383	1.01	0.505	pCi	g	ARS1-B10-01626		1						
ARS1-B10-01649-16	TLS-SB-IA3FL-3 (10.8-11.8)030410	ARS1-10-00492-020	GAM-A-020	AM-241	0.034416	0.059511	0.05954	0.0992	0.0496	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-14	TLS-SB-IA3FL-3 (5.0-6.0)030410	ARS1-10-00492-018	GAM-A-020	AM-241	-0.00613	1.4114	1.4114	0.113	0.0565	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-15	TLS-SB-IA3FL-3 (9.0-10.0)030410	ARS1-10-00492-019	GAM-A-020	AM-241	-0.00294	0.11761	0.11761	0.112	0.056	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-11	TLS-SB-IA3FL-5 (10.0-11.0)030410	ARS1-10-00492-015	GAM-A-020	AM-241	0.032393	0.061356	0.061381	0.103	0.0515	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-09	TLS-SB-IA3FL-5 (4.0-5.0)030410	ARS1-10-00492-013	GAM-A-020	AM-241	0.026847	0.056968	0.056985	0.0958	0.0479	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-12	TLS-SS-IA3FL-3 (1.0-1.5)030410	ARS1-10-00492-016	GAM-A-020	AM-241	0.003487	0.051158	0.051158	0.09	0.045	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-17	TLS-SB-IA1-3 (18.1-19.1)031510	ARS1-10-00580-033	GAM-A-020	AM-241	0.016368	0.52776	0.52776	0.874	0.437	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-18	TLS-SB-IA1-5 (3.0-4.0)031610	ARS1-10-00591-018	GAM-A-020	AM-241	-0.35412	1.3139	1.3141	2.12	1.06	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-19	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710	ARS1-10-00600-016	GAM-A-020	AM-241	-0.02804	0.20933	0.20934	0.202	0.101	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-20	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710D	ARS1-10-00600-017	GAM-A-020	AM-241	0.039482	0.11729	0.11731	0.197	0.0985	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-05	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810	ARS1-10-00609-006	GAM-A-020	AM-241	0.071896	0.19615	0.19618	0.327	0.1635	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-06	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810D	ARS1-10-00609-007	GAM-A-020	AM-241	0.046118	0.16031	0.16033	0.268	0.134	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-07	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810	ARS1-10-00609-013	GAM-A-020	AM-241	0.019966	0.54718	0.54718	0.907	0.4535	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-08	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810D	ARS1-10-00609-014	GAM-A-020	AM-241	0.016072	0.41533	0.41533	0.689	0.3445	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-16	TLS-SB-IA3FL-3 (10.8-11.8)030410	ARS1-10-00492-020	GAM-A-020	RA-226	2.723	1.0085	1.0176	1.11	0.555	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-14	TLS-SB-IA3FL-3 (5.0-6.0)030410	ARS1-10-00492-018	GAM-A-020	RA-226	1.4067	0.89065	0.89344	1.19	0.595	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-15	TLS-SB-IA3FL-3 (9.0-10.0)030410	ARS1-10-00492-019	GAM-A-020	RA-226	1.6715	0.85564	0.85953	1.05	0.525	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-11	TLS-SB-IA3FL-5 (10.0-11.0)030410	ARS1-10-00492-015	GAM-A-020	RA-226	1.3289	0.79735	0.79999	1.09	0.545	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-09	TLS-SB-IA3FL-5 (4.0-5.0)030410	ARS1-10-00492-013	GAM-A-020	RA-226	2.6873	1.0012	1.0098	1.15	0.575	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-12	TLS-SS-IA3FL-3 (1.0-1.5)030410	ARS1-10-00492-016	GAM-A-020	RA-226	1.9177	1.1854	1.1891	1.56	0.78	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-17	TLS-SB-IA1-3 (18.1-19.1)031510	ARS1-10-00580-033	GAM-A-020	RA-226	891.84	12.91	46.482	8.67	4.335	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-18	TLS-SB-IA1-5 (3.0-4.0)031610	ARS1-10-00591-018	GAM-A-020	RA-226	3485.7	23.373	171.9	16.8	8.4	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-19	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710	ARS1-10-00600-016	GAM-A-020	RA-226	6.0507	2.0088	2.0316	2.18	1.09	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-20	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710D	ARS1-10-00600-017	GAM-A-020	RA-226	4.3143	1.884	1.8957	2.23	1.115	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-05	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810	ARS1-10-00609-006	GAM-A-020	RA-226	68.694	3.0138	4.5108	2.42	1.21	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-06	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810D	ARS1-10-00609-007	GAM-A-020	RA-226	51.641	2.7181	3.7542	2.01	1.005	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-07	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810	ARS1-10-00609-013	GAM-A-020	RA-226	648.54	9.207	32.996	5.67	2.835	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-08	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810D	ARS1-10-00609-014	GAM-A-020	RA-226	399.68	7.0539	20.762	3.91	1.955	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-16	TLS-SB-IA3FL-3 (10.8-11.8)030410	ARS1-10-00492-020	GAM-A-020	RA-228	0.93576	0.21217	0.21959	0.15	0.075	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-14	TLS-SB-IA3FL-3 (5.0-6.0)030410	ARS1-10-00492-018	GAM-A-020	RA-228	0.86377	0.18133	0.18898	0.186	0.093	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-15	TLS-SB-IA3FL-3 (9.0-10.0)030410	ARS1-10-00492-019	GAM-A-020	RA-228	0.67436	0.15142	0.15691	0.149	0.0745	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-11	TLS-SB-IA3FL-5 (10.0-11.0)030410	ARS1-10-00492-015	GAM-A-020	RA-228	0.7296	0.16138	0.16741	0.157	0.0785	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-09	TLS-SB-IA3FL-5 (4.0-5.0)030410	ARS1-10-00492-013	GAM-A-020	RA-228	0.68357	0.16032	0.16566	0.123	0.0615	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-12	TLS-SS-IA3FL-3 (1.0-1.5)030410	ARS1-10-00492-016	GAM-A-020	RA-228	0.60716	0.20056	0.20396	0.332	0.166	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-17	TLS-SB-IA1-3 (18.1-19.1)031510	ARS1-10-00580-033	GAM-A-020	RA-228	1.4035	0.5681	0.57441	0.985	0.4925	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-18	TLS-SB-IA1-5 (3.0-4.0)031610	ARS1-10-00591-018	GAM-A-020	RA-228	1.7737	1.3825	1.3868	2.27	1.135	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-19	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710	ARS1-10-00600-016	GAM-A-020	RA-228	2.4095	0.34078	0.3717	0.206	0.103	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-20	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710D	ARS1-10-00600-017	GAM-A-020	RA-228	2.3289	0.30885	0.33998	0.317	0.1585	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-05	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810	ARS1-10-00609-006	GAM-A-020	RA-228	0.94964	0.23797	0.24492	0.345	0.1725	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-06	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810D	ARS1-10-00609-007	GAM-A-020	RA-228	1.3129	0.24495	0.25795	0.228	0.114	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-07	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810	ARS1-10-00609-013	GAM-A-020	RA-228	0.94295	0.40652	0.41057	0.733	0.3665	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-08	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810D	ARS1-10-00609-014	GAM-A-020	RA-228	1.8986	0.36043	0.3786	0.432	0.216	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-16	TLS-SB-IA3FL-3 (10.8-11.8)030410	ARS1-10-00492-020	GAM-A-020	U-234	1.4609	0.54809	0.55882	1.09	0.545	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-14	TLS-SB-IA3FL-3 (5.0-6.0)030410	ARS1-10-00492-018	GAM-A-020	U-234	0.90419	0.67402	0.67728	0.963	0.4815	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-15	TLS-SB-IA3FL-3 (9.0-10.0)030410	ARS1-10-00492-019	GAM-A-020	U-234	1.2834	0.44146	0.4514	0.978	0.489	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-11	TLS-SB-IA3FL-5 (10.0-11.0)030410	ARS1-10-00492-015	GAM-A-020	U-234	0.72882	0.65442	0.65671	0.944	0.472	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-09	TLS-SB-IA3FL-5 (4.0-5.0)030410	ARS1-10-00492-013	GAM-A-020	U-234	1.1757	0.58642	0.59273	1.01	0.505	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-12	TLS-SS-IA3FL-3 (1.0-1.5)030410	ARS1-10-00492-016	GAM-A-020	U-234	1.25	0.64025	0.64679	1.22	0.61	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-17	TLS-SB-IA1-3 (18.1-19.1)031510	ARS1-10-00580-033	GAM-A-020	U-234	547.57	9.0673	41.842	8.4	4.2	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-18	TLS-SB-IA1-5 (3.0-4.0)031610	ARS1-10-00591-018	GAM-A-020	U-234	2048.8	20.606	151.76	19.6	9.8	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-19	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710	ARS1-10-00600-016	GAM-A-020	U-234	3.2083	0.96429	0.99262	1.72	0.86	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-20	TLS-SB-IA1-DOE-B2 (3.0-4.0)031710D	ARS1-10-00600-017	GAM-A-020	U-234	3.7989	0.93627	0.97887	1.48	0.74	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-08	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810D	ARS1-10-00609-014	GAM-A-020	U-234	348.04	5.5174	26.13	5.69	2.845	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-05	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810	ARS1-10-00609-006	GAM-A-020	U-234	66.175	3.0927	5.7574	2.79	1.395	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-06	TLS-SB-IA1-DOE-B1 (6.0-7.0)031810D	ARS1-10-00609-007	GAM-A-020	U-234	45.548	2.0339	3.9127	2.33	1.165	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-07	TLS-SB-IA1-DOE-B3 (5.3-6.3)031810	ARS1-10-00609-013	GAM-A-020	U-234	502.31	8.5541	38.727	7.27	3.635	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-16	TLS-SB-IA3FL-3 (10.8-11.8)030410	ARS1-10-00492-020	GAM-A-020	U-235	0.13616	0.21484	0.21504	0.362	0.181	pCi	g	ARS1-B10-01649		1	U	U				

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01649-14	TLS-SB-IA3FL-3 (5.0-6.0)03041C	ARS1-10-00492-018	GAM-A-020	U-235	0.074623	0.20738	0.20745	0.352	0.176	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-15	TLS-SB-IA3FL-3 (9.0-10.0)03041C	ARS1-10-00492-019	GAM-A-020	U-235	0.019072	0.18347	0.18347	0.319	0.1595	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-11	TLS-SB-IA3FL-5 (10.0-11.0)03041C	ARS1-10-00492-015	GAM-A-020	U-235	0.050357	0.21177	0.2118	0.364	0.182	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-09	TLS-SB-IA3FL-5 (4.0-5.0)03041C	ARS1-10-00492-013	GAM-A-020	U-235	0.11799	0.17322	0.17341	0.294	0.147	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-12	TLS-SS-IA3FL-3 (1.0-1.5)03041C	ARS1-10-00492-016	GAM-A-020	U-235	0.061856	0.21976	0.2198	0.388	0.194	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-17	TLS-SB-IA1-3 (18.1-19.1)03151C	ARS1-10-00580-033	GAM-A-020	U-235	50.001	2.1536	4.0371	2.33	1.165	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-18	TLS-SB-IA1-5 (3.0-4.0)03161C	ARS1-10-00591-018	GAM-A-020	U-235	159.42	4.202	11.615	5.11	2.555	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-19	TLS-SB-IA1-DOE-B2 (3.0-4.0)03171C	ARS1-10-00600-016	GAM-A-020	U-235	0.43335	0.36113	0.36234	0.587	0.2935	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-20	TLS-SB-IA1-DOE-B2 (3.0-4.0)0317100	ARS1-10-00600-017	GAM-A-020	U-235	0.3571	0.36938	0.37018	0.608	0.304	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-08	TLS-SB-IA1-DOE-B3 (5.3-6.3)03181000	ARS1-10-00609-014	GAM-A-020	U-235	26.15	1.372	2.2444	1.39	0.695	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-05	TLS-SB-IA1-DOE-B1 (6.0-7.0)03181C	ARS1-10-00609-006	GAM-A-020	U-235	4.2798	0.62247	0.68701	0.755	0.3775	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-06	TLS-SB-IA1-DOE-B1 (6.0-7.0)0318100	ARS1-10-00609-007	GAM-A-020	U-235	3.4712	0.53099	0.58152	0.585	0.2925	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-07	TLS-SB-IA1-DOE-B3 (5.3-6.3)03181C	ARS1-10-00609-013	GAM-A-020	U-235	40.714	1.7049	3.2489	1.64	0.82	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-16	TLS-SB-IA3FL-3 (10.8-11.8)03041C	ARS1-10-00492-020	GAM-A-020	U-238	1.4609	0.54809	0.55882	1.09	0.545	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-14	TLS-SB-IA3FL-3 (5.0-6.0)03041C	ARS1-10-00492-018	GAM-A-020	U-238	0.90419	0.67402	0.67728	0.963	0.4815	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-15	TLS-SB-IA3FL-3 (9.0-10.0)03041C	ARS1-10-00492-019	GAM-A-020	U-238	1.2834	0.44146	0.4514	0.978	0.489	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-11	TLS-SB-IA3FL-5 (10.0-11.0)03041C	ARS1-10-00492-015	GAM-A-020	U-238	0.72882	0.65442	0.65671	0.944	0.472	pCi	g	ARS1-B10-01649		1	U	U				
ARS1-B10-01649-09	TLS-SB-IA3FL-5 (4.0-5.0)03041C	ARS1-10-00492-013	GAM-A-020	U-238	1.1757	0.58642	0.59273	1.01	0.505	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-12	TLS-SS-IA3FL-3 (1.0-1.5)03041C	ARS1-10-00492-016	GAM-A-020	U-238	1.25	0.64025	0.64679	1.22	0.61	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-17	TLS-SB-IA1-3 (18.1-19.1)03151C	ARS1-10-00580-033	GAM-A-020	U-238	547.57	9.0673	41.842	8.4	4.2	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-18	TLS-SB-IA1-5 (3.0-4.0)03161C	ARS1-10-00591-018	GAM-A-020	U-238	2048.8	20.606	151.76	19.6	9.8	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-19	TLS-SB-IA1-DOE-B2 (3.0-4.0)03171C	ARS1-10-00600-016	GAM-A-020	U-238	3.2083	0.96429	0.99262	1.72	0.86	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-20	TLS-SB-IA1-DOE-B2 (3.0-4.0)0317100	ARS1-10-00600-017	GAM-A-020	U-238	3.7989	0.93627	0.97887	1.48	0.74	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-08	TLS-SB-IA1-DOE-B3 (5.3-6.3)03181000	ARS1-10-00609-014	GAM-A-020	U-238	348.04	5.5174	26.13	5.69	2.845	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-05	TLS-SB-IA1-DOE-B1 (6.0-7.0)03181C	ARS1-10-00609-006	GAM-A-020	U-238	66.175	3.0927	5.7574	2.79	1.395	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-06	TLS-SB-IA1-DOE-B1 (6.0-7.0)0318100	ARS1-10-00609-007	GAM-A-020	U-238	45.548	2.0339	3.9127	2.33	1.165	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01649-07	TLS-SB-IA1-DOE-B3 (5.3-6.3)03181C	ARS1-10-00609-013	GAM-A-020	U-238	502.31	8.5541	38.727	7.27	3.635	pCi	g	ARS1-B10-01649		1						
ARS1-B10-01698-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	GAM-A-020	AM-241	-0.09763	0.1171	0.11722	0.185	0.0925	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	GAM-A-020	AM-241	-0.03174	0.079253	0.07927	0.11	0.055	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	GAM-A-020	AM-241	0.027444	0.059999	0.060016	0.101	0.0505	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	GAM-A-020	AM-241	0.03625	0.066067	0.066096	0.111	0.0555	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-14	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	GAM-A-020	AM-241	0	0.084102	0.084103	0.144	0.072	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	GAM-A-020	AM-241	-0.0155	0.068411	0.068416	0.116	0.058	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	GAM-A-020	RA-226	1.6401	1.0484	1.0516	1.44	0.72	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	GAM-A-020	RA-226	1.575	0.80088	0.80457	1.07	0.535	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	GAM-A-020	RA-226	2.2955	0.81051	0.81864	1.05	0.525	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	GAM-A-020	RA-226	1.5754	0.84973	0.85321	1.42	0.71	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-14	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	GAM-A-020	RA-226	3.1297	1.1494	1.1595	1.39	0.695	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	GAM-A-020	RA-226	2.8057	0.94409	0.95397	1.24	0.62	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	GAM-A-020	RA-228	1.0318	0.20321	0.21258	0.175	0.0875	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	GAM-A-020	RA-228	0.83776	0.13271	0.14222	0.121	0.0605	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	GAM-A-020	RA-228	1.0722	0.18761	0.19889	0.152	0.076	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	GAM-A-020	RA-228	0.76015	0.20954	0.21461	0.207	0.1035	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-14	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	GAM-A-020	RA-228	0.74431	0.1981	0.20324	0.227	0.1135	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	GAM-A-020	RA-228	0.42784	0.21685	0.21841	0.312	0.156	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	GAM-A-020	U-234	1.6412	0.65405	0.66541	1.28	0.64	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	GAM-A-020	U-234	0.84845	0.62935	0.63242	0.907	0.4535	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	GAM-A-020	U-234	1.3647	0.55905	0.56795	1.13	0.565	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	GAM-A-020	U-234	1.3458	0.95899	0.96432	1.2	0.6	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-14	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	GAM-A-020	U-234	1.2272	0.65794	0.66438	1.22	0.61	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	GAM-A-020	U-234	1.23	0.54854	0.55628	0.92	0.46	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	GAM-A-020	U-235	0.12944	0.23922	0.23938	0.407	0.2035	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	GAM-A-020	U-235	0.027274	0.17371	0.17372	0.303	0.1515	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	GAM-A-020	U-235	0.040911	0.22012	0.22013	0.376	0.188	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	GAM-A-020	U-235	-0.08366	0.95351	0.95353	0.388	0.194	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-14	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	GAM-A-020	U-235	0.15972	0.25029	0.25052	0.422	0.211	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	GAM-A-020	U-235	-0.05223	2.089	2.089	0.403	0.2015	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-10	TLS-SB-IA3FL-4 (1.6-2.6)03041C	ARS1-10-00492-022	GAM-A-020	U-238	1.6412	0.65405	0.66541	1.28	0.64	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-13	TLS-SB-IA3FL-4 (10.0-11.0)03041C	ARS1-10-00492-025	GAM-A-020	U-238	0.84845	0.62935	0.63242	0.907	0.4535	pCi	g	ARS1-B10-01698		1	U	U				
ARS1-B10-01698-11	TLS-SB-IA3FL-4 (4.5-5.5)03041C	ARS1-10-00492-023	GAM-A-020	U-238	1.3647	0.55905	0.56795	1.13	0.565	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-19	TLS-SS-IA3FL-0 (1.3-1.8)03041C	ARS1-10-00492-031	GAM-A-020	U-238	1.3458	0.95899	0.96432	1.2	0.6	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-14	TLS-SS-IA3FL-2 (0.5-1.0)03041C	ARS1-10-00492-026	GAM-A-020	U-238	1.2272	0.65794	0.66438	1.22	0.61	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01698-09	TLS-SS-IA3FL-4 (1.1-1.6)03041C	ARS1-10-00492-021	GAM-A-020	U-238	1.23	0.54854	0.55628	0.92	0.46	pCi	g	ARS1-B10-01698		1						
ARS1-B10-01734-14	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	GAM-A-020	AM-241	-0.02324	0.1124	0.11241	0.139	0.0695	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-16	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	GAM-A-020	AM-241	-0.00579	0.23143	0.23143	0.126	0.063	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-20	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	GAM-A-020	AM-241	-0.02486	0.10468	0.10469	0.136	0.068	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-18	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	GAM-A-020	AM-241	-0.01411	0.089434	0.089437	0.151	0.0755	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-14	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	GAM-A-020	RA-226	2.8135	1.0495	1.0585	1.28	0.64	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-16	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	GAM-A-020	RA-226	1.9635	1.0202	1.025	1.26	0.63	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-20	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	GAM-A-020	RA-226	2.3095	0.80402	0.8119	1.05	0.525	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-18	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	GAM-A-020	RA-226	1.7973	1.0219	1.0256	1.78	0.89	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-14	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	GAM-A-020	RA-228	1.2852	0.18504	0.20097	0.169	0.0845	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-16	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	GAM-A-020	RA-228	0.88742	0.16358	0.17247	0.191	0.0955	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-20	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	GAM-A-020	RA-228	1.0273	0.18866	0.1988	0.176	0.088	pCi	g	ARS1-B10-01734		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01734-18	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	GAM-A-020	RA-228	1.2	0.20259	0.21542	0.158	0.079	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-14	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	GAM-A-020	U-234	1.7755	0.63365	0.64691	1.26	0.63	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-16	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	GAM-A-020	U-234	1.2741	0.58454	0.59197	1.06	0.53	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-20	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	GAM-A-020	U-234	1.0946	0.49903	0.50545	0.944	0.472	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-18	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	GAM-A-020	U-234	2.2528	0.83031	0.84661	1.51	0.755	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-14	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	GAM-A-020	U-235	0.041343	0.23764	0.23766	0.411	0.2055	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-16	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	GAM-A-020	U-235	0.11359	0.20393	0.20408	0.343	0.1715	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-20	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	GAM-A-020	U-235	0.038453	0.21402	0.21404	0.37	0.185	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-18	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	GAM-A-020	U-235	0.13251	0.27582	0.27596	0.473	0.2365	pCi	g	ARS1-B10-01734		1	U	U				
ARS1-B10-01734-14	TLS-SB-IA3FL-11 (1.5-2.5)03051C	ARS1-10-00493-007	GAM-A-020	U-238	1.7755	0.63365	0.64691	1.26	0.63	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-16	TLS-SB-IA3FL-11 (6.0-7.0)03051C	ARS1-10-00493-009	GAM-A-020	U-238	1.2741	0.58454	0.59197	1.06	0.53	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-20	TLS-SB-IA3FL-9 (3.0-4.0)03051C	ARS1-10-00493-013	GAM-A-020	U-238	1.0946	0.49903	0.50545	0.944	0.472	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01734-18	TLS-SS-IA3FL-9 (1.0-1.5)03051C	ARS1-10-00493-011	GAM-A-020	U-238	2.2528	0.83031	0.84661	1.51	0.755	pCi	g	ARS1-B10-01734		1						
ARS1-B10-01742-09	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	GAM-A-020	AM-241	-0.01433	0.063049	0.063054	0.107	0.0535	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-15	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	GAM-A-020	AM-241	0.016877	0.071667	0.071672	0.121	0.0605	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-18	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	GAM-A-020	AM-241	-0.01637	0.17343	0.17343	0.133	0.0665	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-06	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	GAM-A-020	AM-241	-0.00137	0.13884	0.13884	0.101	0.0505	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-09	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	GAM-A-020	RA-226	1.5208	0.75804	0.76167	1.05	0.525	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-15	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	GAM-A-020	RA-226	2.2576	0.94653	0.95293	1.2	0.6	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-18	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	GAM-A-020	RA-226	2.1066	0.86339	0.86983	1.16	0.58	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-06	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	GAM-A-020	RA-226	1.4324	0.72042	0.72381	1.05	0.525	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-09	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	GAM-A-020	RA-228	0.66423	0.14196	0.14764	0.149	0.0745	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-15	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	GAM-A-020	RA-228	0.98566	0.17586	0.18586	0.115	0.0575	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-18	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	GAM-A-020	RA-228	1.3379	0.24315	0.25673	0.163	0.0815	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-06	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	GAM-A-020	RA-228	0.58882	0.15871	0.16272	0.172	0.086	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-09	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	GAM-A-020	U-234	0.45444	0.5318	0.5329	0.832	0.416	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-15	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	GAM-A-020	U-234	1.1781	0.75776	0.76267	1.03	0.515	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-18	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	GAM-A-020	U-234	1.4193	0.71212	0.7197	1.14	0.57	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-06	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	GAM-A-020	U-234	1.3167	0.7156	0.7221	0.942	0.471	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-09	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	GAM-A-020	U-235	-0.03426	3.4319	3.4319	0.322	0.161	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-15	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	GAM-A-020	U-235	0.061942	0.21291	0.21295	0.365	0.1825	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-18	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	GAM-A-020	U-235	0.13241	0.25607	0.25623	0.43	0.215	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-06	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	GAM-A-020	U-235	-0.06631	21.067	21.067	0.34	0.17	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-09	TLS-SB-IA3FL-1 (5.0-6.0)030510D	ARS1-10-00493-019	GAM-A-020	U-238	0.45444	0.5318	0.5329	0.832	0.416	pCi	g	ARS1-B10-01742		1	U	U				
ARS1-B10-01742-15	TLS-SB-IA3FL-10 (7.0-8.0)03051C	ARS1-10-00493-025	GAM-A-020	U-238	1.1781	0.75776	0.76267	1.03	0.515	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-18	TLS-SB-IA3FL-8 (1.5-2.5)03051C	ARS1-10-00493-028	GAM-A-020	U-238	1.4193	0.71212	0.7197	1.14	0.57	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01742-06	TLS-SS-IA3FL-1 (2.3-2.8)03051C	ARS1-10-00493-016	GAM-A-020	U-238	1.3167	0.7156	0.7221	0.942	0.471	pCi	g	ARS1-B10-01742		1						
ARS1-B10-01755-10	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	GAM-A-020	AM-241	-0.03831	0.22435	0.22436	0.284	0.142	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-11	TLS-SB-IA1-1 (21.8-22.8) 03081C	ARS1-10-00511-008	GAM-A-020	AM-241	-0.20629	0.52174	0.52186	0.843	0.4215	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-13	TLS-SB-IA1-1 (23.8-24.8) 03081C	ARS1-10-00511-010	GAM-A-020	AM-241	0.033249	0.069053	0.069075	0.116	0.058	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-23	TLS-SB-IA1-2 (18.3-19.3) 03081C	ARS1-10-00511-020	GAM-A-020	AM-241	-0.01204	1.3542	1.3542	0.356	0.178	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-05	TLS-SB-IA6-16 (4.0-5.0) 03081C	ARS1-10-00511-002	GAM-A-020	AM-241	0.05507	0.072662	0.072722	0.12	0.06	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-15	TLS-SB-IA6-17 (3.0-4.0) 03081C	ARS1-10-00511-012	GAM-A-020	AM-241	-0.03851	0.086845	0.086868	0.121	0.0605	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-09	TLS-SS-IA1-1 (0.8-1.3) 03081C	ARS1-10-00511-006	GAM-A-020	AM-241	-0.00851	0.057657	0.057658	0.1	0.05	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-22	TLS-SS-IA1-2 (0.4-1.0) 03081C	ARS1-10-00511-019	GAM-A-020	AM-241	-0.00434	0.32794	0.32794	0.0952	0.0476	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-04	TLS-SS-IA6-16 (3.0-3.5) 03081C	ARS1-10-00511-001	GAM-A-020	AM-241	0.031168	0.060759	0.060781	0.102	0.051	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-10	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	GAM-A-020	RA-226	17.613	2.4433	2.5904	2.46	1.23	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-11	TLS-SB-IA1-1 (21.8-22.8) 03081C	ARS1-10-00511-008	GAM-A-020	RA-226	368.59	8.0266	20.125	6.5	3.25	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-13	TLS-SB-IA1-1 (23.8-24.8) 03081C	ARS1-10-00511-010	GAM-A-020	RA-226	4.2552	1.1072	1.1276	1.3	0.65	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-23	TLS-SB-IA1-2 (18.3-19.3) 03081C	ARS1-10-00511-020	GAM-A-020	RA-226	52.815	3.1154	4.0891	2.39	1.195	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-05	TLS-SB-IA6-16 (4.0-5.0) 03081C	ARS1-10-00511-002	GAM-A-020	RA-226	1.8378	0.99107	0.99512	1.3	0.65	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-15	TLS-SB-IA6-17 (3.0-4.0) 03081C	ARS1-10-00511-012	GAM-A-020	RA-226	2.8827	1.0648	1.0741	1.27	0.635	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-09	TLS-SS-IA1-1 (0.8-1.3) 03081C	ARS1-10-00511-006	GAM-A-020	RA-226	1.4232	1.0661	1.0684	1.45	0.725	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-22	TLS-SS-IA1-2 (0.4-1.0) 03081C	ARS1-10-00511-019	GAM-A-020	RA-226	-4.1857	1.4321	1.4494	1.33	0.665	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-04	TLS-SS-IA6-16 (3.0-3.5) 03081C	ARS1-10-00511-001	GAM-A-020	RA-226	2.3182	0.85623	0.86369	1.12	0.56	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-10	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	GAM-A-020	RA-228	2.8889	0.33946	0.3825	0.307	0.1535	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-11	TLS-SB-IA1-1 (21.8-22.8) 03081C	ARS1-10-00511-008	GAM-A-020	RA-228	0.987	0.46157	0.46542	0.723	0.3615	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-13	TLS-SB-IA1-1 (23.8-24.8) 03081C	ARS1-10-00511-010	GAM-A-020	RA-228	0.88064	0.18003	0.18803	0.124	0.062	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-23	TLS-SB-IA1-2 (18.3-19.3) 03081C	ARS1-10-00511-020	GAM-A-020	RA-228	2.5455	0.28593	0.3261	0.265	0.1325	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-05	TLS-SB-IA6-16 (4.0-5.0) 03081C	ARS1-10-00511-002	GAM-A-020	RA-228	0.89616	0.15862	0.16778	0.173	0.0865	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-15	TLS-SB-IA6-17 (3.0-4.0) 03081C	ARS1-10-00511-012	GAM-A-020	RA-228	0.72127	0.13358	0.14064	0.157	0.0785	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-09	TLS-SS-IA1-1 (0.8-1.3) 03081C	ARS1-10-00511-006	GAM-A-020	RA-228	0.41747	0.16177	0.16376	0.309	0.1545	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-22	TLS-SS-IA1-2 (0.4-1.0) 03081C	ARS1-10-00511-019	GAM-A-020	RA-228	0.54643	0.17283	0.17602	0.243	0.1215	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-04	TLS-SS-IA6-16 (3.0-3.5) 03081C	ARS1-10-00511-001	GAM-A-020	RA-228	0.71557	0.14193	0.14849	0.14	0.07	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-10	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	GAM-A-020	U-234	13.709	1.4496	1.7645	2.14	1.07	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-11	TLS-SB-IA1-1 (21.8-22.8) 03081C	ARS1-10-00511-008	GAM-A-020	U-234	305.48	7.5305	24	7.16	3.58	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-13	TLS-SB-IA1-1 (23.8-24.8) 03081C	ARS1-10-00511-010	GAM-A-020	U-234	2.9687	0.6352	0.67152	1.13	0.565	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-23	TLS-SB-IA1-2 (18.3-19.3) 03081C	ARS1-10-00511-020	GAM-A-020	U-234	51.717	2.4638	4.5248	3.05	1.525	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-05	TLS-SB-IA6-16 (4.0-5.0) 03081C	ARS1-10-00511-002	GAM-A-020	U-234	1.4029	0.84166	0.84824	1.13	0.565	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-15	TLS-SB-IA6-17 (3.0-4.0) 03081C	ARS1-10-00511-012	GAM-A-020	U-234	1.1155	0.58242	0.58815	1.1	0.55	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-09	TLS-SS-IA1-1 (0.8-1.3) 03081C	ARS1-10-00511-006	GAM-A-020	U-234	1.0809	0.56137	0.56722	0.993	0.4965	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-22	TLS-SS-IA1-2 (0.4-1.0) 03081C	ARS1-10-00511-019	GAM-A-020	U-234	1.0927	0.75474	0.75898	1.09	0.545	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-04	TLS-SS-IA6-16 (3.0-3.5) 03081C	ARS1-10-00511-001	GAM-A-020	U-234	1.5505	0.59054	0.6014	1.06	0.53	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-10	TLS-SB-IA1-1 (19.1-20.1) 03081C	ARS1-10-00511-007	GAM-A-020	U-235	1.0465	0.45506	0.46058	0.708	0.354	pCi	g	ARS1-B10-01755		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01755-11	TLS-SB-IA1-1 (21.8-22.8) 030810	ARS1-10-00511-008	GAM-A-020	U-235	27.708	1.8174	2.6237	2.02	1.01	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-13	TLS-SB-IA1-1 (23.8-24.8) 030810	ARS1-10-00511-010	GAM-A-020	U-235	0.18726	0.22737	0.22773	0.376	0.188	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-23	TLS-SB-IA1-2 (18.3-19.3) 030810	ARS1-10-00511-020	GAM-A-020	U-235	3.079	0.6308	0.66494	0.771	0.3855	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-05	TLS-SB-IA6-16 (4.0-5.0) 030810	ARS1-10-00511-002	GAM-A-020	U-235	0.084609	0.22976	0.22983	0.393	0.1965	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-15	TLS-SB-IA6-17 (3.0-4.0) 030810	ARS1-10-00511-012	GAM-A-020	U-235	0.1037	0.19824	0.19836	0.34	0.17	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-09	TLS-SS-IA1-1 (0.8-1.3) 03081	ARS1-10-00511-006	GAM-A-020	U-235	0.053591	0.23525	0.23528	0.411	0.2055	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-22	TLS-SS-IA1-2 (0.4-1.0) 03081	ARS1-10-00511-019	GAM-A-020	U-235	0.042468	0.18976	0.18979	0.331	0.1655	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-04	TLS-SS-IA6-16 (3.0-3.5) 03081	ARS1-10-00511-001	GAM-A-020	U-235	0.02565	0.21022	0.21023	0.368	0.184	pCi	g	ARS1-B10-01755		1	U	U				
ARS1-B10-01755-10	TLS-SB-IA1-1 (19.1-20.1) 030810	ARS1-10-00511-007	GAM-A-020	U-238	13.709	1.4496	1.7645	2.14	1.07	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-11	TLS-SB-IA1-1 (21.8-22.8) 03081	ARS1-10-00511-008	GAM-A-020	U-238	305.48	7.5305	24	7.16	3.58	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-13	TLS-SB-IA1-1 (23.8-24.8) 03081	ARS1-10-00511-010	GAM-A-020	U-238	2.9687	0.6352	0.67152	1.13	0.565	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-23	TLS-SB-IA1-2 (18.3-19.3) 03081	ARS1-10-00511-020	GAM-A-020	U-238	51.717	2.4638	4.5248	3.05	1.525	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-05	TLS-SB-IA6-16 (4.0-5.0) 03081	ARS1-10-00511-002	GAM-A-020	U-238	1.4029	0.84166	0.84824	1.13	0.565	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-15	TLS-SB-IA6-17 (3.0-4.0) 03081	ARS1-10-00511-012	GAM-A-020	U-238	1.1155	0.58242	0.58815	1.1	0.55	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-09	TLS-SS-IA1-1 (0.8-1.3) 03081	ARS1-10-00511-006	GAM-A-020	U-238	1.0809	0.56137	0.56722	0.993	0.4965	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-22	TLS-SS-IA1-2 (0.4-1.0) 03081	ARS1-10-00511-019	GAM-A-020	U-238	1.0927	0.75474	0.75898	1.09	0.545	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01755-04	TLS-SS-IA6-16 (3.0-3.5) 03081	ARS1-10-00511-001	GAM-A-020	U-238	1.5505	0.59054	0.6014	1.06	0.53	pCi	g	ARS1-B10-01755		1						
ARS1-B10-01758-07	TLS-SB-IA1-2 (22.0-22.7) 03081	ARS1-10-00511-021	GAM-A-020	AM-241	-0.02365	0.15386	0.15387	0.259	0.1295	pCi	g	ARS1-B10-01758		1	U	U				
ARS1-B10-01758-08	TLS-SB-IA1-2 (22.7-23.7) 03081	ARS1-10-00511-022	GAM-A-020	AM-241	-0.03249	0.2744	0.2744	0.346	0.173	pCi	g	ARS1-B10-01758		1	U	U				
ARS1-B10-01758-09	TLS-SB-IA1-2 (25.0-26.0) 03081	ARS1-10-00511-023	GAM-A-020	AM-241	-0.00478	21.73	21.73	0.0915	0.04575	pCi	g	ARS1-B10-01758		1	U	U				
ARS1-B10-01758-07	TLS-SB-IA1-2 (22.0-22.7) 03081	ARS1-10-00511-021	GAM-A-020	RA-226	19.018	2.3289	2.5071	2.79	1.395	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-08	TLS-SB-IA1-2 (22.7-23.7) 03081	ARS1-10-00511-022	GAM-A-020	RA-226	48.93	2.8175	3.6951	2.76	1.38	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-09	TLS-SB-IA1-2 (25.0-26.0) 03081	ARS1-10-00511-023	GAM-A-020	RA-226	1.4596	0.64379	0.64794	0.846	0.423	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-07	TLS-SB-IA1-2 (22.0-22.7) 03081	ARS1-10-00511-021	GAM-A-020	RA-228	3.3414	0.53542	0.57293	0.419	0.2095	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-08	TLS-SB-IA1-2 (22.7-23.7) 03081	ARS1-10-00511-022	GAM-A-020	RA-228	3.3626	0.39843	0.44817	0.223	0.1115	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-09	TLS-SB-IA1-2 (25.0-26.0) 03081	ARS1-10-00511-023	GAM-A-020	RA-228	0.31299	0.092175	0.094169	0.17	0.085	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-07	TLS-SB-IA1-2 (22.0-22.7) 03081	ARS1-10-00511-021	GAM-A-020	U-234	20.698	2.5363	2.9757	2.51	1.255	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-08	TLS-SB-IA1-2 (22.7-23.7) 03081	ARS1-10-00511-022	GAM-A-020	U-234	44.496	2.9266	4.3849	2.93	1.465	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-09	TLS-SB-IA1-2 (25.0-26.0) 03081	ARS1-10-00511-023	GAM-A-020	U-234	0.5778	0.51974	0.52147	0.775	0.3875	pCi	g	ARS1-B10-01758		1	U	U				
ARS1-B10-01758-07	TLS-SB-IA1-2 (22.0-22.7) 03081	ARS1-10-00511-021	GAM-A-020	U-235	1.0809	0.46989	0.47558	0.722	0.361	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-08	TLS-SB-IA1-2 (22.7-23.7) 03081	ARS1-10-00511-022	GAM-A-020	U-235	3.4365	0.68299	0.72178	0.691	0.3455	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-09	TLS-SB-IA1-2 (25.0-26.0) 03081	ARS1-10-00511-023	GAM-A-020	U-235	0.036023	0.17083	0.17085	0.293	0.1465	pCi	g	ARS1-B10-01758		1	U	U				
ARS1-B10-01758-07	TLS-SB-IA1-2 (22.0-22.7) 03081	ARS1-10-00511-021	GAM-A-020	U-238	20.698	2.5363	2.9757	2.51	1.255	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-08	TLS-SB-IA1-2 (22.7-23.7) 03081	ARS1-10-00511-022	GAM-A-020	U-238	44.496	2.9266	4.3849	2.93	1.465	pCi	g	ARS1-B10-01758		1						
ARS1-B10-01758-09	TLS-SB-IA1-2 (25.0-26.0) 03081	ARS1-10-00511-023	GAM-A-020	U-238	0.5778	0.51974	0.52147	0.775	0.3875	pCi	g	ARS1-B10-01758		1	U	U				
ARS1-B10-01768-16	TLS-SB-IA1-14 (2.1-3.1)03091	ARS1-10-00559-013	GAM-A-020	AM-241	-0.04074	0.10808	0.10811	0.162	0.081	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-17	TLS-SB-IA1-14 (3.1-4.1)03091	ARS1-10-00559-014	GAM-A-020	AM-241	0.009005	0.064554	0.064556	0.111	0.0555	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-18	TLS-SB-IA1-14 (5.0-6.0)03091	ARS1-10-00559-015	GAM-A-020	AM-241	-0.00223	0.16091	0.16091	0.139	0.0695	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-19	TLS-SB-IA1-14 (8.0-9.0)03091	ARS1-10-00559-016	GAM-A-020	AM-241	-0.01653	0.071738	0.071744	0.121	0.0605	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-13	TLS-SB-IA1-7 (18.6-19.6)03091	ARS1-10-00559-010	GAM-A-020	AM-241	-0.015	0.54213	0.54213	0.226	0.113	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-14	TLS-SB-IA1-7 (21.6-22.6)03091	ARS1-10-00559-011	GAM-A-020	AM-241	0.017549	0.065985	0.065992	0.112	0.056	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-11	TLS-SB-IA1-7 (5.0-6.0)03091	ARS1-10-00559-008	GAM-A-020	AM-241	-0.0198	0.1797	0.1797	0.233	0.1165	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-12	TLS-SB-IA1-7 (17.6-18.6)03091	ARS1-10-00559-009	GAM-A-020	AM-241	0.10282	0.1265	0.12661	0.209	0.1045	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-23	TLS-SB-IA4-B03 (28.6-29.6)03091	ARS1-10-00559-020	GAM-A-020	AM-241	0.026459	0.094511	0.094521	0.16	0.08	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-07	TLS-SB-IA4-BO1 (18.2-19.2)03091	ARS1-10-00559-004	GAM-A-020	AM-241	-0.01945	0.12728	0.12728	0.173	0.0865	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-09	TLS-SB-IA4-BO1 (49.0-50.0)03091	ARS1-10-00559-006	GAM-A-020	AM-241	-0.02653	0.1071	0.1071	0.119	0.0595	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-15	TLS-SS-IA1-14 (1.6-2.1)03091	ARS1-10-00559-012	GAM-A-020	AM-241	0.000658	0.064259	0.064259	0.11	0.055	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-10	TLS-SS-IA1-7 (1.0-1.5)03091	ARS1-10-00559-007	GAM-A-020	AM-241	0.000258	0.071242	0.071242	0.123	0.0615	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-20	TLS-SS-IA4-B03 (2.8-3.3)03091	ARS1-10-00559-017	GAM-A-020	AM-241	0.029753	0.06133	0.06135	0.103	0.0515	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-04	TLS-SS-IA4-BO1 (1.3-1.8)03091	ARS1-10-00559-001	GAM-A-020	AM-241	0.000885	0.090129	0.090129	0.155	0.0775	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-16	TLS-SB-IA1-14 (2.1-3.1)03091	ARS1-10-00559-013	GAM-A-020	RA-226	3.9624	1.1269	1.1442	1.49	0.745	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-17	TLS-SB-IA1-14 (3.1-4.1)03091	ARS1-10-00559-014	GAM-A-020	RA-226	3.2906	1.1713	1.1823	1.46	0.73	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-18	TLS-SB-IA1-14 (5.0-6.0)03091	ARS1-10-00559-015	GAM-A-020	RA-226	2.6804	1.1976	1.2052	1.43	0.715	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-19	TLS-SB-IA1-14 (8.0-9.0)03091	ARS1-10-00559-016	GAM-A-020	RA-226	2.135	1.0128	1.0182	1.29	0.645	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-13	TLS-SB-IA1-7 (18.6-19.6)03091	ARS1-10-00559-010	GAM-A-020	RA-226	8.685	2.0503	2.0961	2.38	1.19	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-14	TLS-SB-IA1-7 (21.6-22.6)03091	ARS1-10-00559-011	GAM-A-020	RA-226	2.1754	0.9234	0.92949	1.18	0.59	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-11	TLS-SB-IA1-7 (5.0-6.0)03091	ARS1-10-00559-008	GAM-A-020	RA-226	7.4189	2.7779	2.8026	2.67	1.335	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-12	TLS-SB-IA1-7 (17.6-18.6)03091	ARS1-10-00559-009	GAM-A-020	RA-226	8.5811	1.9379	1.9827	2.17	1.085	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-23	TLS-SB-IA4-B03 (28.6-29.6)03091	ARS1-10-00559-020	GAM-A-020	RA-226	4.3148	1.4441	1.4684	1.76	0.88	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-07	TLS-SB-IA4-BO1 (18.2-19.2)03091	ARS1-10-00559-004	GAM-A-020	RA-226	3.745	1.485	1.4968	1.89	0.945	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-09	TLS-SB-IA4-BO1 (49.0-50.0)03091	ARS1-10-00559-006	GAM-A-020	RA-226	2.2677	0.97471	0.98132	1.16	0.58	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-15	TLS-SS-IA1-14 (1.6-2.1)03091	ARS1-10-00559-012	GAM-A-020	RA-226	3.9235	1.0131	1.031	1.14	0.57	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-10	TLS-SS-IA1-7 (1.0-1.5)03091	ARS1-10-00559-007	GAM-A-020	RA-226	6.3093	1.3555	1.39	1.87	0.935	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-20	TLS-SS-IA4-B03 (2.8-3.3)03091	ARS1-10-00559-017	GAM-A-020	RA-226	3.3632	1.0325	1.0455	1.25	0.625	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-04	TLS-SS-IA4-BO1 (1.3-1.8)03091	ARS1-10-00559-001	GAM-A-020	RA-226	4.1456	1.7521	1.7643	2.1	1.05	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-16	TLS-SB-IA1-14 (2.1-3.1)03091	ARS1-10-00559-013	GAM-A-020	RA-228	0.73833	0.20068	0.20559	0.266	0.133	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-17	TLS-SB-IA1-14 (3.1-4.1)03091	ARS1-10-00559-014	GAM-A-020	RA-228	0.99851	0.16533	0.1762	0.169	0.0845	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-18	TLS-SB-IA1-14 (5.0-6.0)03091	ARS1-10-00559-015	GAM-A-020	RA-228	0.91497	0.16628	0.17557	0.158	0.079	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-19	TLS-SB-IA1-14 (8.0-9.0)03091	ARS1-10-00559-016	GAM-A-020	RA-228	0.72879	0.16714	0.17296	0.195	0.0975	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-13	TLS-SB-IA1-7 (18.6-19.6)03091	ARS1-10-00559-010	GAM-A-020	RA-228	1.9779	0.28644	0.31127	0.333	0.1665	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-14	TLS-SB-IA1-7 (21.6-22.6)03091	ARS1-10-00559-011	GAM-A-020	RA-228	0.79001	0.16845	0.17522	0.185	0.0925	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-11	TLS-SB-IA1-7 (5.0-6.0)03091	ARS1-10-00559-008	GAM-A-020	RA-228	2.5227	0.33901	0.3718	0.31	0.155	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-12	TLS-SB-IA1-7 (17.6-18.6)03091	ARS1-10-00559-009	GAM-A-020	RA-228	2.3148	0.31436	0.34464	0.218	0.109	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-23	TLS-SB-IA4-B03 (28.6-29.6)03091	ARS1-10-00559-020	GAM-A-020	RA-228	1.7016	0.31589	0.33313	0.234	0.117	pCi	g	ARS1-B10-01768		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01768-07	TLS-SB-IA4-BO1 (18.2-19.2)030910	ARS1-10-00559-004	GAM-A-020	RA-228	2.084	0.27223	0.30002	0.22	0.11	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-09	TLS-SB-IA4-BO1 (49.0-50.0)030910	ARS1-10-00559-006	GAM-A-020	RA-228	0.6584	0.13514	0.14109	0.169	0.0845	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-15	TLS-SS-IA1-14 (1.6-2.1)03091	ARS1-10-00559-012	GAM-A-020	RA-228	1.16	0.20111	0.21321	0.154	0.077	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-10	TLS-SS-IA1-7 (1.0-1.5)03091	ARS1-10-00559-007	GAM-A-020	RA-228	0.46761	0.18626	0.18844	0.355	0.1775	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-20	TLS-SS-IA4-B03 (2.8-3.3)03091	ARS1-10-00559-017	GAM-A-020	RA-228	1.2476	0.22587	0.23836	0.194	0.097	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-04	TLS-SS-IA4-BO1 (1.3-1.8)03091	ARS1-10-00559-001	GAM-A-020	RA-228	1.7438	0.44621	0.45896	0.338	0.169	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-16	TLS-SB-IA1-14 (2.1-3.1)03091	ARS1-10-00559-013	GAM-A-020	U-234	1.4806	0.83435	0.84163	1.67	0.835	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-17	TLS-SB-IA1-14 (3.1-4.1)03091	ARS1-10-00559-014	GAM-A-020	U-234	1.3694	0.79137	0.79772	1.5	0.75	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-18	TLS-SB-IA1-14 (5.0-6.0)03091	ARS1-10-00559-015	GAM-A-020	U-234	0.31291	0.80601	0.80634	1.4	0.7	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-19	TLS-SB-IA1-14 (8.0-9.0)03091	ARS1-10-00559-016	GAM-A-020	U-234	1.0778	0.58663	0.5922	1.04	0.52	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-13	TLS-SB-IA1-7 (18.6-19.6)03091	ARS1-10-00559-010	GAM-A-020	U-234	7.1739	1.3027	1.405	2.1	1.05	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-14	TLS-SB-IA1-7 (21.6-22.6)03091	ARS1-10-00559-011	GAM-A-020	U-234	0.71099	0.71988	0.72187	1.04	0.52	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-11	TLS-SB-IA1-7 (5.0-6.0)03091	ARS1-10-00559-008	GAM-A-020	U-234	5.6126	1.3485	1.412	2.34	1.17	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-12	TLS-SB-IA1-7 (17.6-18.6)03091	ARS1-10-00559-009	GAM-A-020	U-234	6.2941	1.3611	1.4373	2.24	1.12	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-23	TLS-SB-IA4-B03 (28.6-29.6)03091	ARS1-10-00559-020	GAM-A-020	U-234	2.9363	0.85204	0.87811	1.44	0.72	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-07	TLS-SB-IA4-BO1 (18.2-19.2)03091	ARS1-10-00559-004	GAM-A-020	U-234	3.6982	0.84012	0.88425	1.77	0.885	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-09	TLS-SB-IA4-BO1 (49.0-50.0)03091	ARS1-10-00559-006	GAM-A-020	U-234	1.0419	0.52624	0.53176	0.975	0.4875	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-15	TLS-SS-IA1-14 (1.6-2.1)03091	ARS1-10-00559-012	GAM-A-020	U-234	2.7374	0.79636	0.82131	0.989	0.4945	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-10	TLS-SS-IA1-7 (1.0-1.5)03091	ARS1-10-00559-007	GAM-A-020	U-234	6.0781	1.1302	1.2191	1.32	0.66	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-20	TLS-SS-IA4-B03 (2.8-3.3)03091	ARS1-10-00559-017	GAM-A-020	U-234	2.2458	0.57317	0.59639	1.14	0.57	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-04	TLS-SS-IA4-BO1 (1.3-1.8)03091	ARS1-10-00559-001	GAM-A-020	U-234	1.9827	0.92282	0.93422	1.93	0.965	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-16	TLS-SB-IA1-14 (2.1-3.1)03091	ARS1-10-00559-013	GAM-A-020	U-235	0.008883	0.27517	0.27517	0.479	0.2395	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-17	TLS-SB-IA1-14 (3.1-4.1)03091	ARS1-10-00559-014	GAM-A-020	U-235	0.14144	0.25208	0.25226	0.427	0.2135	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-18	TLS-SB-IA1-14 (5.0-6.0)03091	ARS1-10-00559-015	GAM-A-020	U-235	0.16559	0.28171	0.28193	0.471	0.2355	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-19	TLS-SB-IA1-14 (8.0-9.0)03091	ARS1-10-00559-016	GAM-A-020	U-235	0.12272	0.20934	0.20951	0.353	0.1765	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-13	TLS-SB-IA1-7 (18.6-19.6)03091	ARS1-10-00559-010	GAM-A-020	U-235	0.54936	0.41401	0.41571	0.669	0.3345	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-14	TLS-SB-IA1-7 (21.6-22.6)03091	ARS1-10-00559-011	GAM-A-020	U-235	0.028337	0.23167	0.23168	0.399	0.1995	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-11	TLS-SB-IA1-7 (5.0-6.0)03091	ARS1-10-00559-008	GAM-A-020	U-235	0.51658	0.44524	0.44663	0.73	0.365	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-12	TLS-SB-IA1-7 (17.6-18.6)03091	ARS1-10-00559-009	GAM-A-020	U-235	0.41763	0.39355	0.39457	0.648	0.324	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-23	TLS-SB-IA4-B03 (28.6-29.6)03091	ARS1-10-00559-020	GAM-A-020	U-235	-0.03289	1.3154	1.3154	0.525	0.2625	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-07	TLS-SB-IA4-BO1 (18.2-19.2)03091	ARS1-10-00559-004	GAM-A-020	U-235	0.19603	0.30891	0.3092	0.519	0.2595	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-09	TLS-SB-IA4-BO1 (49.0-50.0)03091	ARS1-10-00559-006	GAM-A-020	U-235	0.1974	0.21952	0.21994	0.362	0.181	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-15	TLS-SS-IA1-14 (1.6-2.1)03091	ARS1-10-00559-012	GAM-A-020	U-235	0.049325	0.21462	0.21464	0.373	0.1865	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-10	TLS-SS-IA1-7 (1.0-1.5)03091	ARS1-10-00559-007	GAM-A-020	U-235	0.37823	0.26784	0.26907	0.429	0.2145	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-20	TLS-SS-IA4-B03 (2.8-3.3)03091	ARS1-10-00559-017	GAM-A-020	U-235	0.10645	0.22685	0.22696	0.388	0.194	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-04	TLS-SS-IA4-BO1 (1.3-1.8)03091	ARS1-10-00559-001	GAM-A-020	U-235	0.080251	0.28406	0.28411	0.496	0.248	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-16	TLS-SB-IA1-14 (2.1-3.1)03091	ARS1-10-00559-013	GAM-A-020	U-238	1.4806	0.83435	0.84163	1.67	0.835	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-17	TLS-SB-IA1-14 (3.1-4.1)03091	ARS1-10-00559-014	GAM-A-020	U-238	1.3694	0.79137	0.79772	1.5	0.75	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-18	TLS-SB-IA1-14 (5.0-6.0)03091	ARS1-10-00559-015	GAM-A-020	U-238	0.31291	0.80601	0.80634	1.4	0.7	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-19	TLS-SB-IA1-14 (8.0-9.0)03091	ARS1-10-00559-016	GAM-A-020	U-238	1.0778	0.58663	0.5922	1.04	0.52	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-13	TLS-SB-IA1-7 (18.6-19.6)03091	ARS1-10-00559-010	GAM-A-020	U-238	7.1739	1.3027	1.405	2.1	1.05	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-14	TLS-SB-IA1-7 (21.6-22.6)03091	ARS1-10-00559-011	GAM-A-020	U-238	0.71099	0.71988	0.72187	1.04	0.52	pCi	g	ARS1-B10-01768		1	U	U				
ARS1-B10-01768-11	TLS-SB-IA1-7 (5.0-6.0)03091	ARS1-10-00559-008	GAM-A-020	U-238	5.6126	1.3485	1.412	2.34	1.17	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-12	TLS-SB-IA1-7 (17.6-18.6)03091	ARS1-10-00559-009	GAM-A-020	U-238	6.2941	1.3611	1.4373	2.24	1.12	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-23	TLS-SB-IA4-B03 (28.6-29.6)03091	ARS1-10-00559-020	GAM-A-020	U-238	2.9363	0.85204	0.87811	1.44	0.72	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-07	TLS-SB-IA4-BO1 (18.2-19.2)03091	ARS1-10-00559-004	GAM-A-020	U-238	3.6982	0.84012	0.88425	1.77	0.885	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-09	TLS-SB-IA4-BO1 (49.0-50.0)03091	ARS1-10-00559-006	GAM-A-020	U-238	1.0419	0.52624	0.53176	0.975	0.4875	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-15	TLS-SS-IA1-14 (1.6-2.1)03091	ARS1-10-00559-012	GAM-A-020	U-238	2.7374	0.79636	0.82131	0.989	0.4945	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-10	TLS-SS-IA1-7 (1.0-1.5)03091	ARS1-10-00559-007	GAM-A-020	U-238	6.0781	1.1302	1.2191	1.32	0.66	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-20	TLS-SS-IA4-B03 (2.8-3.3)03091	ARS1-10-00559-017	GAM-A-020	U-238	2.2458	0.57317	0.59639	1.14	0.57	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01768-04	TLS-SS-IA4-BO1 (1.3-1.8)03091	ARS1-10-00559-001	GAM-A-020	U-238	1.9827	0.92282	0.93422	1.93	0.965	pCi	g	ARS1-B10-01768		1						
ARS1-B10-01795-19	TLS-SB-IA1-18 (1.5-2.5)03091	ARS1-10-00559-023	GAM-A-020	AM-241	-0.0057	0.14495	0.14495	0.116	0.058	pCi	g	ARS1-B10-01795		1	U	U				
ARS1-B10-01795-20	TLS-SB-IA1-18 (3.5-4.5)03091	ARS1-10-00559-024	GAM-A-020	AM-241	0.015378	0.084135	0.084139	0.143	0.0715	pCi	g	ARS1-B10-01795		1	U	U				
ARS1-B10-01795-18	TLS-SS-IA1-18 (1.0-1.5)03091	ARS1-10-00559-022	GAM-A-020	AM-241	0.024763	0.071632	0.071644	0.121	0.0605	pCi	g	ARS1-B10-01795		1	U	U				
ARS1-B10-01795-19	TLS-SB-IA1-18 (1.5-2.5)03091	ARS1-10-00559-023	GAM-A-020	RA-226	2.5746	1.2937	1.3001	1.68	0.84	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-20	TLS-SB-IA1-18 (3.5-4.5)03091	ARS1-10-00559-024	GAM-A-020	RA-226	2.8421	1.2443	1.252	1.74	0.87	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-18	TLS-SS-IA1-18 (1.0-1.5)03091	ARS1-10-00559-022	GAM-A-020	RA-226	2.2016	0.92682	0.93304	1.17	0.585	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-19	TLS-SB-IA1-18 (1.5-2.5)03091	ARS1-10-00559-023	GAM-A-020	RA-228	1.0978	0.22887	0.23832	0.249	0.1245	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-20	TLS-SB-IA1-18 (3.5-4.5)03091	ARS1-10-00559-024	GAM-A-020	RA-228	1.2985	0.23667	0.24959	0.218	0.109	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-18	TLS-SS-IA1-18 (1.0-1.5)03091	ARS1-10-00559-022	GAM-A-020	RA-228	0.7113	0.17945	0.18462	0.177	0.0885	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-19	TLS-SB-IA1-18 (1.5-2.5)03091	ARS1-10-00559-023	GAM-A-020	U-234	2.4615	0.82213	0.84239	1.65	0.825	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-20	TLS-SB-IA1-18 (3.5-4.5)03091	ARS1-10-00559-024	GAM-A-020	U-234	1.956	0.6952	0.70986	1.46	0.73	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-18	TLS-SS-IA1-18 (1.0-1.5)03091	ARS1-10-00559-022	GAM-A-020	U-234	1.2467	0.5124	0.5205	1.06	0.53	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-19	TLS-SB-IA1-18 (1.5-2.5)03091	ARS1-10-00559-023	GAM-A-020	U-235	0.10497	0.28741	0.2875	0.49	0.245	pCi	g	ARS1-B10-01795		1	U	U				
ARS1-B10-01795-20	TLS-SB-IA1-18 (3.5-4.5)03091	ARS1-10-00559-024	GAM-A-020	U-235	0.039576	0.28089	0.28091	0.483	0.2415	pCi	g	ARS1-B10-01795		1	U	U				
ARS1-B10-01795-18	TLS-SS-IA1-18 (1.0-1.5)03091	ARS1-10-00559-022	GAM-A-020	U-235	0.10875	0.19833	0.19847	0.339	0.1695	pCi	g	ARS1-B10-01795		1	U	U				
ARS1-B10-01795-19	TLS-SB-IA1-18 (1.5-2.5)03091	ARS1-10-00559-023	GAM-A-020	U-238	2.4615	0.82213	0.84239	1.65	0.825	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-20	TLS-SB-IA1-18 (3.5-4.5)03091	ARS1-10-00559-024	GAM-A-020	U-238	1.956	0.6952	0.70986	1.46	0.73	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01795-18	TLS-SS-IA1-18 (1.0-1.5)03091	ARS1-10-00559-022	GAM-A-020	U-238	1.2467	0.5124	0.5205	1.06	0.53	pCi	g	ARS1-B10-01795		1						
ARS1-B10-01796-05	TLS-SB-IA1-18 (4.8-5.8)03091	ARS1-10-00559-025	GAM-A-020	AM-241	0.037645	0.084704	0.084727	0.142	0.071	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-06	TLS-SB-IA1-18 (5.8-6.8)03091	ARS1-10-00559-026	GAM-A-020	AM-241	-0.03821	0.083729	0.083754	0.14	0.07	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-08	TLS-SB-IA1-19 (0.9-1.9)03091	ARS1-10-00559-028	GAM-A-020	AM-241	0.007311	0.079339	0.07934	0.135	0.0675	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-09	TLS-SB-IA1-19 (1.9-2.9)03091	ARS1-10-00559-029	GAM-A-020	AM-241	0.039146	0.093019	0.093041	0.156	0.078	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-10	TLS-SB-IA1-19 (3.0-4.0)03091	ARS1-10-00559-030	GAM-A-020	AM-241	-0.00101	0.11443	0.11443	0.142	0.071	pCi	g	ARS1-B10-01796		1	U	U				

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01796-11	TLS-SB-IA1-19 (6.0-7.0)030910	ARS1-10-00559-031	GAM-A-020	AM-241	-0.00093	0.065807	0.065807	0.113	0.0565	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-18	TLS-SB-IA1-22 (2.8-3.8)030910	ARS1-10-00559-038	GAM-A-020	AM-241	0.058449	0.15189	0.15192	0.253	0.1265	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-19	TLS-SB-IA1-22 (4.3-5.3)030910	ARS1-10-00559-039	GAM-A-020	AM-241	0.041451	0.084512	0.08454	0.141	0.0705	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-20	TLS-SB-IA1-22 (5.3-6.3)030910	ARS1-10-00559-040	GAM-A-020	AM-241	0.01048	0.078697	0.078699	0.134	0.067	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-13	TLS-SB-IA4-B04 (17.0-18.0)03091C	ARS1-10-00559-033	GAM-A-020	AM-241	0.015367	0.082784	0.082788	0.14	0.07	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-14	TLS-SB-IA4-B04 (28.0-29.0)03091C	ARS1-10-00559-034	GAM-A-020	AM-241	-0.02042	0.13564	0.13564	0.161	0.0805	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-15	TLS-SB-IA4-B04 (33.1-34.1)03091C	ARS1-10-00559-035	GAM-A-020	AM-241	-0.00921	0.33107	0.33107	0.112	0.056	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-07	TLS-SS-IA1-19 (0.4-0.9)03091C	ARS1-10-00559-027	GAM-A-020	AM-241	0.041291	0.058252	0.058292	0.0968	0.0484	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-17	TLS-SS-IA1-22 (2.3-2.8)03091C	ARS1-10-00559-037	GAM-A-020	AM-241	0.041464	0.073432	0.073463	0.123	0.0615	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-12	TLS-SS-IA4-B04 (2.3-2.8)03091C	ARS1-10-00559-032	GAM-A-020	AM-241	-0.01644	0.12006	0.12006	0.137	0.0685	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-05	TLS-SB-IA1-18 (4.8-5.8)030910	ARS1-10-00559-025	GAM-A-020	RA-226	2.6688	1.0898	1.098	1.34	0.67	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-06	TLS-SB-IA1-18 (5.8-6.8)030910	ARS1-10-00559-026	GAM-A-020	RA-226	2.0035	0.91492	0.92014	1.25	0.625	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-08	TLS-SB-IA1-19 (0.9-1.9)030910	ARS1-10-00559-028	GAM-A-020	RA-226	2.3543	1.1426	1.1486	1.44	0.72	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-09	TLS-SB-IA1-19 (1.9-2.9)030910	ARS1-10-00559-029	GAM-A-020	RA-226	4.8645	1.3457	1.3665	1.71	0.855	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-10	TLS-SB-IA1-19 (3.0-4.0)030910	ARS1-10-00559-030	GAM-A-020	RA-226	2.0934	1.0578	1.063	1.33	0.665	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-11	TLS-SB-IA1-19 (6.0-7.0)030910	ARS1-10-00559-031	GAM-A-020	RA-226	1.6857	0.86288	0.8668	1.16	0.58	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-18	TLS-SB-IA1-22 (2.8-3.8)030910	ARS1-10-00559-038	GAM-A-020	RA-226	6.8951	1.7738	1.8071	2.14	1.07	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-19	TLS-SB-IA1-22 (4.3-5.3)030910	ARS1-10-00559-039	GAM-A-020	RA-226	1.9542	1.5661	1.569	1.42	0.71	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-20	TLS-SB-IA1-22 (5.3-6.3)030910	ARS1-10-00559-040	GAM-A-020	RA-226	2.2974	1.5348	1.5391	1.55	0.775	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-13	TLS-SB-IA4-B04 (17.0-18.0)03091C	ARS1-10-00559-033	GAM-A-020	RA-226	2.4795	1.042	1.0494	1.71	0.855	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-14	TLS-SB-IA4-B04 (28.0-29.0)03091C	ARS1-10-00559-034	GAM-A-020	RA-226	3.5307	1.194	1.2064	1.7	0.85	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-15	TLS-SB-IA4-B04 (33.1-34.1)03091C	ARS1-10-00559-035	GAM-A-020	RA-226	2.7011	1.0591	1.0677	1.32	0.66	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-07	TLS-SS-IA1-19 (0.4-0.9)03091C	ARS1-10-00559-027	GAM-A-020	RA-226	1.3335	0.86801	0.87045	1.16	0.58	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-17	TLS-SS-IA1-22 (2.3-2.8)03091C	ARS1-10-00559-037	GAM-A-020	RA-226	2.904	1.2164	1.2247	1.5	0.75	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-12	TLS-SS-IA4-B04 (2.3-2.8)03091C	ARS1-10-00559-032	GAM-A-020	RA-226	3.2143	1.1573	1.1679	1.38	0.69	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-05	TLS-SB-IA1-18 (4.8-5.8)030910	ARS1-10-00559-025	GAM-A-020	RA-228	1.2081	0.17311	0.18843	0.183	0.0915	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-06	TLS-SB-IA1-18 (5.8-6.8)030910	ARS1-10-00559-026	GAM-A-020	RA-228	1.2375	0.19854	0.21242	0.153	0.0765	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-08	TLS-SB-IA1-19 (0.9-1.9)030910	ARS1-10-00559-028	GAM-A-020	RA-228	0.93869	0.16751	0.17688	0.203	0.1015	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-09	TLS-SB-IA1-19 (1.9-2.9)030910	ARS1-10-00559-029	GAM-A-020	RA-228	2.085	0.34609	0.36874	0.227	0.1135	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-10	TLS-SB-IA1-19 (3.0-4.0)030910	ARS1-10-00559-030	GAM-A-020	RA-228	1.0397	0.21599	0.22528	0.259	0.1295	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-11	TLS-SB-IA1-19 (6.0-7.0)030910	ARS1-10-00559-031	GAM-A-020	RA-228	0.87693	0.15543	0.16438	0.201	0.1005	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-18	TLS-SB-IA1-22 (2.8-3.8)030910	ARS1-10-00559-038	GAM-A-020	RA-228	1.9305	0.24265	0.26931	0.234	0.117	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-19	TLS-SB-IA1-22 (4.3-5.3)030910	ARS1-10-00559-039	GAM-A-020	RA-228	1.2543	0.23598	0.24809	0.19	0.095	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-20	TLS-SB-IA1-22 (5.3-6.3)030910	ARS1-10-00559-040	GAM-A-020	RA-228	1.1207	0.18808	0.20035	0.202	0.101	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-13	TLS-SB-IA4-B04 (17.0-18.0)03091C	ARS1-10-00559-033	GAM-A-020	RA-228	1.0965	0.23013	0.2395	0.183	0.0915	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-14	TLS-SB-IA4-B04 (28.0-29.0)03091C	ARS1-10-00559-034	GAM-A-020	RA-228	1.8637	0.20222	0.23201	0.202	0.101	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-15	TLS-SB-IA4-B04 (33.1-34.1)03091C	ARS1-10-00559-035	GAM-A-020	RA-228	1.2773	0.19121	0.20676	0.173	0.0865	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-07	TLS-SS-IA1-19 (0.4-0.9)03091C	ARS1-10-00559-027	GAM-A-020	RA-228	0.80697	0.1507	0.15854	0.182	0.091	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-17	TLS-SS-IA1-22 (2.3-2.8)03091C	ARS1-10-00559-037	GAM-A-020	RA-228	1.1525	0.19702	0.2092	0.195	0.0975	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-12	TLS-SS-IA4-B04 (2.3-2.8)03091C	ARS1-10-00559-032	GAM-A-020	RA-228	1.4016	0.21021	0.22695	0.117	0.0585	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-05	TLS-SB-IA1-18 (4.8-5.8)030910	ARS1-10-00559-025	GAM-A-020	U-234	1.5446	0.71754	0.72643	1.28	0.64	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-06	TLS-SB-IA1-18 (5.8-6.8)030910	ARS1-10-00559-026	GAM-A-020	U-234	1.0649	0.65589	0.66076	1.24	0.62	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-08	TLS-SB-IA1-19 (0.9-1.9)030910	ARS1-10-00559-028	GAM-A-020	U-234	0.70409	0.8076	0.80931	1.23	0.615	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-09	TLS-SB-IA1-19 (1.9-2.9)030910	ARS1-10-00559-029	GAM-A-020	U-234	2.6025	1.0402	1.0575	1.68	0.84	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-10	TLS-SB-IA1-19 (3.0-4.0)030910	ARS1-10-00559-030	GAM-A-020	U-234	1.6719	0.61084	0.62304	1.06	0.53	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-11	TLS-SB-IA1-19 (6.0-7.0)030910	ARS1-10-00559-031	GAM-A-020	U-234	1.0874	0.59916	0.60471	1.11	0.555	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-18	TLS-SB-IA1-22 (2.8-3.8)030910	ARS1-10-00559-038	GAM-A-020	U-234	4.2841	1.0359	1.084	2.34	1.17	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-19	TLS-SB-IA1-22 (4.3-5.3)030910	ARS1-10-00559-039	GAM-A-020	U-234	1.2036	0.74661	0.75182	1.42	0.71	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-20	TLS-SB-IA1-22 (5.3-6.3)030910	ARS1-10-00559-040	GAM-A-020	U-234	2.0234	0.65152	0.66822	1.22	0.61	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-13	TLS-SB-IA4-B04 (17.0-18.0)03091C	ARS1-10-00559-033	GAM-A-020	U-234	1.9366	0.89013	0.90178	1.38	0.69	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-14	TLS-SB-IA4-B04 (28.0-29.0)03091C	ARS1-10-00559-034	GAM-A-020	U-234	2.2799	0.75528	0.77359	1.63	0.815	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-15	TLS-SB-IA4-B04 (33.1-34.1)03091C	ARS1-10-00559-035	GAM-A-020	U-234	2.1832	0.75995	0.77665	1.3	0.65	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-07	TLS-SS-IA1-19 (0.4-0.9)03091C	ARS1-10-00559-027	GAM-A-020	U-234	0.79805	0.72945	0.73179	0.975	0.4875	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-17	TLS-SS-IA1-22 (2.3-2.8)03091C	ARS1-10-00559-037	GAM-A-020	U-234	1.6788	0.61257	0.62483	1.35	0.675	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-12	TLS-SS-IA4-B04 (2.3-2.8)03091C	ARS1-10-00559-032	GAM-A-020	U-234	1.993	0.60037	0.61793	1.05	0.525	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-05	TLS-SB-IA1-18 (4.8-5.8)030910	ARS1-10-00559-025	GAM-A-020	U-235	0.13101	0.24269	0.24286	0.408	0.204	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-06	TLS-SB-IA1-18 (5.8-6.8)030910	ARS1-10-00559-026	GAM-A-020	U-235	0.16666	0.23005	0.23033	0.385	0.1925	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-08	TLS-SB-IA1-19 (0.9-1.9)030910	ARS1-10-00559-028	GAM-A-020	U-235	0.032636	0.25008	0.25009	0.431	0.2155	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-09	TLS-SB-IA1-19 (1.9-2.9)030910	ARS1-10-00559-029	GAM-A-020	U-235	0.1327	0.29501	0.29514	0.5	0.25	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-10	TLS-SB-IA1-19 (3.0-4.0)030910	ARS1-10-00559-030	GAM-A-020	U-235	0.15845	0.24577	0.24601	0.411	0.2055	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-11	TLS-SB-IA1-19 (6.0-7.0)030910	ARS1-10-00559-031	GAM-A-020	U-235	-0.0385	5.388	5.388	0.404	0.202	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-18	TLS-SB-IA1-22 (2.8-3.8)030910	ARS1-10-00559-038	GAM-A-020	U-235	0.36225	0.35784	0.35869	0.592	0.296	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-19	TLS-SB-IA1-22 (4.3-5.3)030910	ARS1-10-00559-039	GAM-A-020	U-235	0.0418	0.26011	0.26012	0.447	0.2235	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-20	TLS-SB-IA1-22 (5.3-6.3)030910	ARS1-10-00559-040	GAM-A-020	U-235	0.16461	0.25855	0.25879	0.432	0.216	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-13	TLS-SB-IA4-B04 (17.0-18.0)03091C	ARS1-10-00559-033	GAM-A-020	U-235	0.26426	0.23761	0.2383	0.392	0.196	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-14	TLS-SB-IA4-B04 (28.0-29.0)03091C	ARS1-10-00559-034	GAM-A-020	U-235	0.25269	0.3038	0.30428	0.505	0.2525	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-15	TLS-SB-IA4-B04 (33.1-34.1)03091C	ARS1-10-00559-035	GAM-A-020	U-235	0.098654	0.25424	0.25433	0.43	0.215	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-07	TLS-SS-IA1-19 (0.4-0.9)03091C	ARS1-10-00559-027	GAM-A-020	U-235	-0.02937	0.47769	0.47769	0.324	0.162	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-17	TLS-SS-IA1-22 (2.3-2.8)03091C	ARS1-10-00559-037	GAM-A-020	U-235	0.030089	0.24558	0.24559	0.432	0.216	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-12	TLS-SS-IA4-B04 (2.3-2.8)03091C	ARS1-10-00559-032	GAM-A-020	U-235	0.12915	0.24643	0.24658	0.416	0.208	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-05	TLS-SB-IA1-18 (4.8-5.8)030910	ARS1-10-00559-025	GAM-A-020	U-238	1.5446	0.71754	0.72643	1.28	0.64	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-06	TLS-SB-IA1-18 (5.8-6.8)030910	ARS1-10-00559-026	GAM-A-020	U-238	1.0649	0.65589	0.66076	1.24	0.62	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-08	TLS-SB-IA1-19 (0.9-1.9)030910	ARS1-10-00559-028	GAM-A-020	U-238	0.70409	0.8076	0.80931	1.23	0.615	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-09	TLS-SB-IA1-19 (1.9-2.9)030910	ARS1-10-00559-029	GAM-A-020	U-238	2.6025	1.0402	1.0575	1.68	0.84	pCi	g	ARS1-B10-01796		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01796-10	TLS-SB-IA1-19 (3.0-4.0)030910	ARS1-10-00559-030	GAM-A-020	U-238	1.6719	0.61084	0.62304	1.06	0.53	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-11	TLS-SB-IA1-19 (6.0-7.0)030910	ARS1-10-00559-031	GAM-A-020	U-238	1.0874	0.59916	0.60471	1.11	0.555	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-18	TLS-SB-IA1-22 (2.8-3.8)030910	ARS1-10-00559-038	GAM-A-020	U-238	4.2841	1.0359	1.084	2.34	1.17	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-19	TLS-SB-IA1-22 (4.3-5.3)030910	ARS1-10-00559-039	GAM-A-020	U-238	1.2036	0.74661	0.75182	1.42	0.71	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-20	TLS-SB-IA1-22 (5.3-6.3)030910	ARS1-10-00559-040	GAM-A-020	U-238	2.0234	0.65152	0.66822	1.22	0.61	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-13	TLS-SB-IA4-B04 (17.0-18.0)03091	ARS1-10-00559-033	GAM-A-020	U-238	1.9366	0.89013	0.90178	1.38	0.69	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-14	TLS-SB-IA4-B04 (28.0-29.0)03091	ARS1-10-00559-034	GAM-A-020	U-238	2.2799	0.75528	0.77359	1.63	0.815	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-15	TLS-SB-IA4-B04 (33.1-34.1)03091	ARS1-10-00559-035	GAM-A-020	U-238	2.1832	0.75995	0.77665	1.3	0.65	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-07	TLS-SS-IA1-19 (0.4-0.9)03091	ARS1-10-00559-027	GAM-A-020	U-238	0.79805	0.72945	0.73179	0.975	0.4875	pCi	g	ARS1-B10-01796		1	U	U				
ARS1-B10-01796-17	TLS-SS-IA1-22 (2.3-2.8)03091	ARS1-10-00559-037	GAM-A-020	U-238	1.6788	0.61257	0.62483	1.35	0.675	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01796-12	TLS-SS-IA4-B04 (2.3-2.8)03091	ARS1-10-00559-032	GAM-A-020	U-238	1.993	0.60037	0.61793	1.05	0.525	pCi	g	ARS1-B10-01796		1						
ARS1-B10-01801-04	TLS-SB-IA1-22 (7.3-8.0)030910	ARS1-10-00559-041	GAM-A-020	AM-241	-0.02306	0.085518	0.085527	0.144	0.072	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-07	TLS-SB-IA4-B02 (16.8-17.8)03091	ARS1-10-00559-044	GAM-A-020	AM-241	0.055794	0.12254	0.12258	0.205	0.1025	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-05	TLS-SS-IA4-B02 (2.0-2.5)03091	ARS1-10-00559-042	GAM-A-020	AM-241	0.013296	0.051198	0.051203	0.0868	0.0434	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-04	TLS-SB-IA1-22 (7.3-8.0)030910	ARS1-10-00559-041	GAM-A-020	RA-226	2.584	1.1265	1.1336	1.43	0.715	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-07	TLS-SB-IA4-B02 (16.8-17.8)03091	ARS1-10-00559-044	GAM-A-020	RA-226	7.1294	1.8265	1.8594	2.01	1.005	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-05	TLS-SS-IA4-B02 (2.0-2.5)03091	ARS1-10-00559-042	GAM-A-020	RA-226	2.3559	0.83056	0.83848	0.989	0.4945	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-04	TLS-SB-IA1-22 (7.3-8.0)030910	ARS1-10-00559-041	GAM-A-020	RA-228	0.80639	0.17695	0.18367	0.242	0.121	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-07	TLS-SB-IA4-B02 (16.8-17.8)03091	ARS1-10-00559-044	GAM-A-020	RA-228	2.4935	0.29936	0.33581	0.266	0.133	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-05	TLS-SS-IA4-B02 (2.0-2.5)03091	ARS1-10-00559-042	GAM-A-020	RA-228	0.98571	0.17335	0.18349	0.12	0.06	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-04	TLS-SB-IA1-22 (7.3-8.0)030910	ARS1-10-00559-041	GAM-A-020	U-234	0.31385	0.76786	0.76823	1.16	0.58	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-07	TLS-SB-IA4-B02 (16.8-17.8)03091	ARS1-10-00559-044	GAM-A-020	U-234	3.2758	0.97616	1.0053	2.08	1.04	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-05	TLS-SS-IA4-B02 (2.0-2.5)03091	ARS1-10-00559-042	GAM-A-020	U-234	0.95102	0.44287	0.44833	0.697	0.3485	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-04	TLS-SB-IA1-22 (7.3-8.0)030910	ARS1-10-00559-041	GAM-A-020	U-235	0.095294	0.25358	0.25366	0.432	0.216	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-07	TLS-SB-IA4-B02 (16.8-17.8)03091	ARS1-10-00559-044	GAM-A-020	U-235	0.21024	0.36116	0.36144	0.607	0.3035	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-05	TLS-SS-IA4-B02 (2.0-2.5)03091	ARS1-10-00559-042	GAM-A-020	U-235	-0.02725	0.53384	0.53385	0.287	0.1435	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-04	TLS-SB-IA1-22 (7.3-8.0)030910	ARS1-10-00559-041	GAM-A-020	U-238	0.31385	0.76786	0.76823	1.16	0.58	pCi	g	ARS1-B10-01801		1	U	U				
ARS1-B10-01801-07	TLS-SB-IA4-B02 (16.8-17.8)03091	ARS1-10-00559-044	GAM-A-020	U-238	3.2758	0.97616	1.0053	2.08	1.04	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01801-05	TLS-SS-IA4-B02 (2.0-2.5)03091	ARS1-10-00559-042	GAM-A-020	U-238	0.95102	0.44287	0.44833	0.697	0.3485	pCi	g	ARS1-B10-01801		1						
ARS1-B10-01850-18	TLS-SS-IA5-13 (1.7-2.3) 02231	ARS1-10-00443-013	GAM-A-020	AM-241	-0.00018	0.049756	0.049756	0.0845	0.04225	pCi	g	ARS1-B10-01850		1	U	U				
ARS1-B10-01850-18	TLS-SS-IA5-13 (1.7-2.3) 02231	ARS1-10-00443-013	GAM-A-020	RA-226	1.4267	0.61565	0.61958	0.886	0.443	pCi	g	ARS1-B10-01850		1						
ARS1-B10-01850-18	TLS-SS-IA5-13 (1.7-2.3) 02231	ARS1-10-00443-013	GAM-A-020	RA-228	0.60739	0.12885	0.13407	0.155	0.0775	pCi	g	ARS1-B10-01850		1						
ARS1-B10-01850-18	TLS-SS-IA5-13 (1.7-2.3) 02231	ARS1-10-00443-013	GAM-A-020	U-234	0.89344	0.4382	0.44332	0.784	0.392	pCi	g	ARS1-B10-01850		1						
ARS1-B10-01850-18	TLS-SS-IA5-13 (1.7-2.3) 02231	ARS1-10-00443-013	GAM-A-020	U-235	0.050999	0.16448	0.16451	0.28	0.14	pCi	g	ARS1-B10-01850		1	U	U				
ARS1-B10-01850-18	TLS-SS-IA5-13 (1.7-2.3) 02231	ARS1-10-00443-013	GAM-A-020	U-238	0.89344	0.4382	0.44332	0.784	0.392	pCi	g	ARS1-B10-01850		1						
ARS1-B10-01921-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	GAM-A-020	AM-241	0.002473	0.092734	0.092734	0.159	0.0795	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	GAM-A-020	AM-241	0.045404	0.10308	0.10311	0.173	0.0865	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	GAM-A-020	AM-241	0.055285	0.10542	0.10546	0.176	0.088	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-11	TLS-SB-IA1-13 (7.0-8.0)031010	ARS1-10-00560-005	GAM-A-020	AM-241	0.010892	0.10331	0.10331	0.176	0.088	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	GAM-A-020	AM-241	-0.00792	0.18162	0.18162	0.127	0.0635	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	GAM-A-020	AM-241	-0.03656	0.10019	0.10021	0.137	0.0685	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	GAM-A-020	AM-241	0.022623	0.10426	0.10427	0.176	0.088	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	GAM-A-020	AM-241	0.041634	0.09455	0.094577	0.158	0.079	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	GAM-A-020	AM-241	0.031587	0.082507	0.082524	0.139	0.0695	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-07	TLS-SS-IA1-13 (1.2-1.7)031010	ARS1-10-00560-001	GAM-A-020	AM-241	0.036792	0.08711	0.087132	0.147	0.0735	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-13	TLS-SS-IA1-17 (1.6-2.1)031010	ARS1-10-00560-007	GAM-A-020	AM-241	-0.01921	0.18775	0.18775	0.125	0.0625	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-18	TLS-SS-IA1-21 (0.4-0.9)031010	ARS1-10-00560-012	GAM-A-020	AM-241	-0.01993	0.086888	0.086894	0.148	0.074	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	GAM-A-020	RA-226	3.7026	1.2427	1.2558	1.59	0.795	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	GAM-A-020	RA-226	6.2923	1.7537	1.7819	1.97	0.985	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	GAM-A-020	RA-226	5.0527	1.4282	1.4494	1.75	0.875	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-11	TLS-SB-IA1-13 (7.0-8.0)031010	ARS1-10-00560-005	GAM-A-020	RA-226	3.9103	1.7331	1.7436	2.1	1.05	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	GAM-A-020	RA-226	1.5084	1.095	1.0975	1.41	0.705	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	GAM-A-020	RA-226	2.798	0.97398	0.98353	1.23	0.615	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	GAM-A-020	RA-226	5.972	1.5863	1.6143	1.85	0.925	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	GAM-A-020	RA-226	2.556	1.4837	1.489	1.87	0.935	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	GAM-A-020	RA-226	2.0924	0.95079	0.95627	1.57	0.785	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-07	TLS-SS-IA1-13 (1.2-1.7)031010	ARS1-10-00560-001	GAM-A-020	RA-226	2.6914	1.2536	1.2605	1.64	0.82	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-13	TLS-SS-IA1-17 (1.6-2.1)031010	ARS1-10-00560-007	GAM-A-020	RA-226	3.0628	1.4043	1.4127	1.67	0.835	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-18	TLS-SS-IA1-21 (0.4-0.9)031010	ARS1-10-00560-012	GAM-A-020	RA-226	2.7745	1.3596	1.3664	2.33	1.165	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	GAM-A-020	RA-228	1.2165	0.20145	0.21469	0.154	0.077	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	GAM-A-020	RA-228	2.0105	0.32372	0.3466	0.222	0.111	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	GAM-A-020	RA-228	2.2216	0.27416	0.30585	0.198	0.099	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-11	TLS-SB-IA1-13 (7.0-8.0)031010	ARS1-10-00560-005	GAM-A-020	RA-228	1.6546	0.29195	0.30892	0.161	0.0805	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	GAM-A-020	RA-228	0.7968	0.17209	0.17883	0.128	0.064	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	GAM-A-020	RA-228	0.96998	0.1501	0.16135	0.191	0.0955	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	GAM-A-020	RA-228	1.6151	0.29323	0.30909	0.239	0.1195	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	GAM-A-020	RA-228	1.412	0.27102	0.28439	0.243	0.1215	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	GAM-A-020	RA-228	0.79215	0.21394	0.21933	0.317	0.1585	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-07	TLS-SS-IA1-13 (1.2-1.7)031010	ARS1-10-00560-001	GAM-A-020	RA-228	1.3749	0.28616	0.29821	0.202	0.101	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-13	TLS-SS-IA1-17 (1.6-2.1)031010	ARS1-10-00560-007	GAM-A-020	RA-228	1.1439	0.20351	0.21536	0.227	0.1135	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-18	TLS-SS-IA1-21 (0.4-0.9)031010	ARS1-10-00560-012	GAM-A-020	RA-228	1.5565	0.26597	0.28242	0.193	0.0965	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	GAM-A-020	U-234	1.4186	1.0308	1.0361	1.54	0.77	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	GAM-A-020	U-234	3.0236	0.91127	0.93789	1.67	0.835	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	GAM-A-020	U-234	2.7214	0.79415	0.81888	1.63	0.815	pCi	g	ARS1-B10-01921		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01921-11	TLS-SB-IA1-13 (7.0-8.0)031010	ARS1-10-00560-005	GAM-A-020	U-234	2.4603	0.74246	0.76516	1.42	0.71	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	GAM-A-020	U-234	1.0255	0.80322	0.80674	1.2	0.6	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	GAM-A-020	U-234	1.4387	0.57889	0.58844	1.26	0.63	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	GAM-A-020	U-234	2.9802	0.83907	0.86802	1.53	0.765	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	GAM-A-020	U-234	0.99195	0.95809	0.96099	1.62	0.81	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	GAM-A-020	U-234	2.113	1.2001	1.2101	1.57	0.785	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-07	TLS-SS-IA1-13 (1.2-1.7)03101C	ARS1-10-00560-001	GAM-A-020	U-234	1.441	0.78167	0.78915	1.29	0.645	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-13	TLS-SS-IA1-17 (1.6-2.1)03101C	ARS1-10-00560-007	GAM-A-020	U-234	1.442	0.84421	0.85082	1.55	0.775	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-18	TLS-SS-IA1-21 (0.4-0.9)03101C	ARS1-10-00560-012	GAM-A-020	U-234	2.8064	1.0122	1.0329	2.02	1.01	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	GAM-A-020	U-235	-0.11246	1.9177	1.9177	0.462	0.231	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	GAM-A-020	U-235	0.079967	0.34239	0.34243	0.581	0.2905	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	GAM-A-020	U-235	-0.09639	3.2789	3.2789	0.6	0.3	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-11	TLS-SB-IA1-13 (7.0-8.0)031010	ARS1-10-00560-005	GAM-A-020	U-235	0.17284	0.31065	0.31087	0.526	0.263	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	GAM-A-020	U-235	0.076856	0.21207	0.21214	0.365	0.1825	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	GAM-A-020	U-235	0.034803	0.22873	0.22874	0.398	0.199	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	GAM-A-020	U-235	0.29229	0.34119	0.34177	0.567	0.2835	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	GAM-A-020	U-235	-0.179	0.62973	0.62985	0.57	0.285	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	GAM-A-020	U-235	0.10917	0.26419	0.26429	0.452	0.226	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-07	TLS-SS-IA1-13 (1.2-1.7)03101C	ARS1-10-00560-001	GAM-A-020	U-235	0.17365	0.29064	0.29088	0.491	0.2455	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-13	TLS-SS-IA1-17 (1.6-2.1)03101C	ARS1-10-00560-007	GAM-A-020	U-235	0.058681	0.31254	0.31256	0.536	0.268	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-18	TLS-SS-IA1-21 (0.4-0.9)03101C	ARS1-10-00560-012	GAM-A-020	U-235	0.12901	0.36032	0.36042	0.621	0.3105	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-08	TLS-SB-IA1-13 (1.7-2.7)031010	ARS1-10-00560-002	GAM-A-020	U-238	1.4186	1.0308	1.0361	1.54	0.77	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-09	TLS-SB-IA1-13 (3.0-4.0)031010	ARS1-10-00560-003	GAM-A-020	U-238	3.0236	0.91127	0.93789	1.67	0.835	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-10	TLS-SB-IA1-13 (3.0-4.0)031010D	ARS1-10-00560-004	GAM-A-020	U-238	2.7214	0.79415	0.81888	1.63	0.815	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-11	TLS-SB-IA1-13 (7.0-8.0)031010	ARS1-10-00560-005	GAM-A-020	U-238	2.4603	0.74246	0.76516	1.42	0.71	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-12	TLS-SB-IA1-13 (8.9-9.9)031010	ARS1-10-00560-006	GAM-A-020	U-238	1.0255	0.80322	0.80674	1.2	0.6	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-14	TLS-SB-IA1-17 (2.1-3.1)031010	ARS1-10-00560-008	GAM-A-020	U-238	1.4387	0.57889	0.58844	1.26	0.63	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-15	TLS-SB-IA1-17 (3.1-4.0)031010	ARS1-10-00560-009	GAM-A-020	U-238	2.9802	0.83907	0.86802	1.53	0.765	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-16	TLS-SB-IA1-17 (5.0-6.0)031010	ARS1-10-00560-010	GAM-A-020	U-238	0.99195	0.95809	0.96099	1.62	0.81	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-17	TLS-SB-IA1-17 (6.7-7.7)031010	ARS1-10-00560-011	GAM-A-020	U-238	2.113	1.2001	1.2101	1.57	0.785	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-07	TLS-SS-IA1-13 (1.2-1.7)03101C	ARS1-10-00560-001	GAM-A-020	U-238	1.441	0.78167	0.78915	1.29	0.645	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01921-13	TLS-SS-IA1-17 (1.6-2.1)03101C	ARS1-10-00560-007	GAM-A-020	U-238	1.442	0.84421	0.85082	1.55	0.775	pCi	g	ARS1-B10-01921		1	U	U				
ARS1-B10-01921-18	TLS-SS-IA1-21 (0.4-0.9)03101C	ARS1-10-00560-012	GAM-A-020	U-238	2.8064	1.0122	1.0329	2.02	1.01	pCi	g	ARS1-B10-01921		1						
ARS1-B10-01924-04	TLS-SB-IA1-21 (0.9-1.9)031010	ARS1-10-00560-013	GAM-A-020	AM-241	0.007119	0.091137	0.091138	0.155	0.0775	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-05	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	GAM-A-020	AM-241	0.075454	0.13576	0.13582	0.226	0.113	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-06	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	GAM-A-020	AM-241	-0.00844	0.067347	0.067348	0.116	0.058	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-07	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	GAM-A-020	AM-241	-0.00533	0.34161	0.34161	0.137	0.0685	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-23	TLS-SB-IA5-B01 (3.0-4.0)03101C	ARS1-10-00560-032	GAM-A-020	AM-241	0.026656	0.069623	0.069638	0.117	0.0585	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-09	TLS-SB-IA5-B02 (3.0-4.0)03101C	ARS1-10-00560-018	GAM-A-020	AM-241	-0.00432	0.17266	0.17266	0.165	0.0825	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-20	TLS-SB-IA5-B03 (13.5-14.5)03101C	ARS1-10-00560-029	GAM-A-020	AM-241	0.040341	0.070567	0.070598	0.118	0.059	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-18	TLS-SB-IA5-B03 (3.0-4.0)03101C	ARS1-10-00560-027	GAM-A-020	AM-241	0.040372	0.088019	0.088044	0.148	0.074	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-15	TLS-SB-IA6-B01 (16.9-18.0)03101C	ARS1-10-00560-024	GAM-A-020	AM-241	-0.02799	0.12388	0.12389	0.12	0.06	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-16	TLS-SB-IA6-B01 (21.0-22.0)03101C	ARS1-10-00560-025	GAM-A-020	AM-241	-0.0145	0.069068	0.069072	0.117	0.0585	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-21	TLS-SS-IA5-B01 (0.8-1.3)03101C	ARS1-10-00560-030	GAM-A-020	AM-241	-0.01702	0.11491	0.11492	0.0959	0.04795	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-17	TLS-SS-IA5-B03 (0.7-1.2)03101C	ARS1-10-00560-026	GAM-A-020	AM-241	0.011401	0.076513	0.076515	0.13	0.065	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-12	TLS-SS-IA6-B01 (0.4-0.9)03101C	ARS1-10-00560-021	GAM-A-020	AM-241	-0.00341	2.006	2.006	0.125	0.0625	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-04	TLS-SB-IA1-21 (0.9-1.9)031010	ARS1-10-00560-013	GAM-A-020	RA-226	4.0905	1.4945	1.5085	1.5	0.75	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-05	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	GAM-A-020	RA-226	4.1699	1.5066	1.521	1.96	0.98	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-06	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	GAM-A-020	RA-226	3.3135	1.543	1.5515	1.8	0.9	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-07	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	GAM-A-020	RA-226	1.7263	0.81924	0.82357	1.19	0.595	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-23	TLS-SB-IA5-B01 (3.0-4.0)03101C	ARS1-10-00560-032	GAM-A-020	RA-226	2.4491	1.0802	1.0868	1.37	0.685	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-09	TLS-SB-IA5-B02 (3.0-4.0)03101C	ARS1-10-00560-018	GAM-A-020	RA-226	3.5746	1.4868	1.497	1.71	0.855	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-20	TLS-SB-IA5-B03 (13.5-14.5)03101C	ARS1-10-00560-029	GAM-A-020	RA-226	1.8207	0.957	0.96112	1.59	0.795	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-18	TLS-SB-IA5-B03 (3.0-4.0)03101C	ARS1-10-00560-027	GAM-A-020	RA-226	2.4371	1.2029	1.2088	1.47	0.735	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-15	TLS-SB-IA6-B01 (16.9-18.0)03101C	ARS1-10-00560-024	GAM-A-020	RA-226	1.7111	1.0477	1.0512	1.4	0.7	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-16	TLS-SB-IA6-B01 (21.0-22.0)03101C	ARS1-10-00560-025	GAM-A-020	RA-226	1.7866	1.1974	1.2005	1.57	0.785	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-21	TLS-SS-IA5-B01 (0.8-1.3)03101C	ARS1-10-00560-030	GAM-A-020	RA-226	1.2898	0.82798	0.8305	1.07	0.535	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-17	TLS-SS-IA5-B03 (0.7-1.2)03101C	ARS1-10-00560-026	GAM-A-020	RA-226	2.5936	1.2691	1.2754	1.57	0.785	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-12	TLS-SS-IA6-B01 (0.4-0.9)03101C	ARS1-10-00560-021	GAM-A-020	RA-226	2.4306	1.0596	1.0662	1.31	0.655	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-04	TLS-SB-IA1-21 (0.9-1.9)031010	ARS1-10-00560-013	GAM-A-020	RA-228	1.411	0.23318	0.24885	0.166	0.083	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-05	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	GAM-A-020	RA-228	1.5852	0.2595	0.27666	0.192	0.096	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-06	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	GAM-A-020	RA-228	1.3432	0.2504	0.26347	0.276	0.138	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-07	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	GAM-A-020	RA-228	0.84362	0.13465	0.14416	0.152	0.076	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-23	TLS-SB-IA5-B01 (3.0-4.0)03101C	ARS1-10-00560-032	GAM-A-020	RA-228	0.8311	0.16946	0.17688	0.126	0.063	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-09	TLS-SB-IA5-B02 (3.0-4.0)03101C	ARS1-10-00560-018	GAM-A-020	RA-228	1.4849	0.29486	0.30846	0.224	0.112	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-20	TLS-SB-IA5-B03 (13.5-14.5)03101C	ARS1-10-00560-029	GAM-A-020	RA-228	1.2614	0.26637	0.27727	0.185	0.0925	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-18	TLS-SB-IA5-B03 (3.0-4.0)03101C	ARS1-10-00560-027	GAM-A-020	RA-228	1.2071	0.21094	0.22343	0.186	0.093	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-15	TLS-SB-IA6-B01 (16.9-18.0)03101C	ARS1-10-00560-024	GAM-A-020	RA-228	0.282	0.14567	0.1467	0.21	0.105	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-16	TLS-SB-IA6-B01 (21.0-22.0)03101C	ARS1-10-00560-025	GAM-A-020	RA-228	0.86805	0.14535	0.15471	0.155	0.0775	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-21	TLS-SS-IA5-B01 (0.8-1.3)03101C	ARS1-10-00560-030	GAM-A-020	RA-228	0.48632	0.14398	0.14707	0.13	0.065	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-17	TLS-SS-IA5-B03 (0.7-1.2)03101C	ARS1-10-00560-026	GAM-A-020	RA-228	1.4628	0.2808	0.29465	0.196	0.098	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-12	TLS-SS-IA6-B01 (0.4-0.9)03101C	ARS1-10-00560-021	GAM-A-020	RA-228	1.3274	0.17454	0.19242	0.217	0.1085	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-04	TLS-SB-IA1-21 (0.9-1.9)031010	ARS1-10-00560-013	GAM-A-020	U-234	2.0015	0.78113	0.79482	1.35	0.675	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-05	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	GAM-A-020	U-234	4.7721	1.7024	1.7393	2.09	1.045	pCi	g	ARS1-B10-01924		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01924-06	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	GAM-A-020	U-234	1.4011	1.0636	1.0688	1.43	0.715	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-07	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	GAM-A-020	U-234	0.83846	0.9666	0.96855	1.33	0.665	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-23	TLS-SB-IA5-B01 (3.0-4.0)031010	ARS1-10-00560-032	GAM-A-020	U-234	1.5572	0.63152	0.64228	1.2	0.6	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-09	TLS-SB-IA5-B02 (3.0-4.0)031010	ARS1-10-00560-018	GAM-A-020	U-234	1.6058	0.68327	0.69336	1.41	0.705	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-20	TLS-SB-IA5-B03 (13.5-14.5)031010	ARS1-10-00560-029	GAM-A-020	U-234	1.6946	0.76519	0.77523	1.41	0.705	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-18	TLS-SB-IA5-B03 (3.0-4.0)031010	ARS1-10-00560-027	GAM-A-020	U-234	1.6936	0.61652	0.62893	1.22	0.61	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-15	TLS-SB-IA6-B01 (16.9-18.0)031010	ARS1-10-00560-024	GAM-A-020	U-234	1.7725	0.59215	0.60627	1.18	0.59	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-16	TLS-SB-IA6-B01 (21.0-22.0)031010	ARS1-10-00560-025	GAM-A-020	U-234	1.9344	0.62372	0.63967	1.34	0.67	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-21	TLS-SS-IA5-B01 (0.8-1.3)031010	ARS1-10-00560-030	GAM-A-020	U-234	1.0159	0.64161	0.64592	0.874	0.437	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-17	TLS-SS-IA5-B03 (0.7-1.2)031010	ARS1-10-00560-026	GAM-A-020	U-234	1.2014	0.73227	0.73782	1.2	0.6	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-12	TLS-SS-IA6-B01 (0.4-0.9)031010	ARS1-10-00560-021	GAM-A-020	U-234	1.6284	0.61309	0.62463	1.25	0.625	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-04	TLS-SB-IA1-21 (0.9-1.9)031010	ARS1-10-00560-013	GAM-A-020	U-235	0.11376	0.28629	0.2864	0.484	0.242	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-05	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	GAM-A-020	U-235	0.17877	0.31572	0.31595	0.534	0.267	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-06	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	GAM-A-020	U-235	0.065583	0.28844	0.28847	0.495	0.2475	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-07	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	GAM-A-020	U-235	0.037155	0.23862	0.23864	0.412	0.206	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-23	TLS-SB-IA5-B01 (3.0-4.0)031010	ARS1-10-00560-032	GAM-A-020	U-235	0.11624	0.22723	0.22737	0.387	0.1935	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-09	TLS-SB-IA5-B02 (3.0-4.0)031010	ARS1-10-00560-018	GAM-A-020	U-235	-0.07723	3.0893	3.0893	0.462	0.231	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-20	TLS-SB-IA5-B03 (13.5-14.5)031010	ARS1-10-00560-029	GAM-A-020	U-235	0.19677	0.24396	0.24433	0.409	0.2045	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-18	TLS-SB-IA5-B03 (3.0-4.0)031010	ARS1-10-00560-027	GAM-A-020	U-235	-0.07217	2.8869	2.8869	0.503	0.2515	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-15	TLS-SB-IA6-B01 (16.9-18.0)031010	ARS1-10-00560-024	GAM-A-020	U-235	0.099249	0.2445	0.24459	0.417	0.2085	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-16	TLS-SB-IA6-B01 (21.0-22.0)031010	ARS1-10-00560-025	GAM-A-020	U-235	0.068014	0.23377	0.23381	0.405	0.2025	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-21	TLS-SS-IA5-B01 (0.8-1.3)031010	ARS1-10-00560-030	GAM-A-020	U-235	0.097057	0.17964	0.17976	0.304	0.152	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-17	TLS-SS-IA5-B03 (0.7-1.2)031010	ARS1-10-00560-026	GAM-A-020	U-235	0.040617	0.27557	0.27559	0.472	0.236	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-12	TLS-SS-IA6-B01 (0.4-0.9)031010	ARS1-10-00560-021	GAM-A-020	U-235	0.11214	0.23767	0.23779	0.402	0.201	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-04	TLS-SB-IA1-21 (0.9-1.9)031010	ARS1-10-00560-013	GAM-A-020	U-238	2.0015	0.78113	0.79482	1.35	0.675	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-05	TLS-SB-IA1-21 (1.9-2.9)031010	ARS1-10-00560-014	GAM-A-020	U-238	4.7721	1.7024	1.7393	2.09	1.045	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-06	TLS-SB-IA1-21 (3.6-4.6)031010	ARS1-10-00560-015	GAM-A-020	U-238	1.4011	1.0636	1.0688	1.43	0.715	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-07	TLS-SB-IA1-21 (6.5-7.0)031010	ARS1-10-00560-016	GAM-A-020	U-238	0.83846	0.9666	0.96855	1.33	0.665	pCi	g	ARS1-B10-01924		1	U	U				
ARS1-B10-01924-23	TLS-SB-IA5-B01 (3.0-4.0)031010	ARS1-10-00560-032	GAM-A-020	U-238	1.5572	0.63152	0.64228	1.2	0.6	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-09	TLS-SB-IA5-B02 (3.0-4.0)031010	ARS1-10-00560-018	GAM-A-020	U-238	1.6058	0.68327	0.69336	1.41	0.705	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-20	TLS-SB-IA5-B03 (13.5-14.5)031010	ARS1-10-00560-029	GAM-A-020	U-238	1.6946	0.76519	0.77523	1.41	0.705	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-18	TLS-SB-IA5-B03 (3.0-4.0)031010	ARS1-10-00560-027	GAM-A-020	U-238	1.6936	0.61652	0.62893	1.22	0.61	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-15	TLS-SB-IA6-B01 (16.9-18.0)031010	ARS1-10-00560-024	GAM-A-020	U-238	1.7725	0.59215	0.60627	1.18	0.59	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-16	TLS-SB-IA6-B01 (21.0-22.0)031010	ARS1-10-00560-025	GAM-A-020	U-238	1.9344	0.62372	0.63967	1.34	0.67	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-21	TLS-SS-IA5-B01 (0.8-1.3)031010	ARS1-10-00560-030	GAM-A-020	U-238	1.0159	0.64161	0.64592	0.874	0.437	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-17	TLS-SS-IA5-B03 (0.7-1.2)031010	ARS1-10-00560-026	GAM-A-020	U-238	1.2014	0.73227	0.73782	1.2	0.6	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01924-12	TLS-SS-IA6-B01 (0.4-0.9)031010	ARS1-10-00560-021	GAM-A-020	U-238	1.6284	0.61309	0.62463	1.25	0.625	pCi	g	ARS1-B10-01924		1						
ARS1-B10-01926-12	TLS-SB-IA1-20 (1.6-2.6)031010	ARS1-10-00560-039	GAM-A-020	AM-241	-0.08568	0.16876	0.16882	0.249	0.1245	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-13	TLS-SB-IA1-20 (3.3-4.0)031010	ARS1-10-00560-040	GAM-A-020	AM-241	0.003863	0.08144	0.08144	0.139	0.0695	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-14	TLS-SB-IA1-20 (4.8-5.8)031010	ARS1-10-00560-041	GAM-A-020	AM-241	-0.00204	0.081797	0.081797	0.142	0.071	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-15	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	GAM-A-020	AM-241	-0.0345	0.1584	0.15841	0.168	0.084	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-16	TLS-SB-IA1-20 (6.8-8.0)031010	ARS1-10-00560-043	GAM-A-020	AM-241	0	0.075353	0.075353	0.129	0.0645	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-18	TLS-SB-IA1-8 (3.0-4.0)031010	ARS1-10-00560-045	GAM-A-020	AM-241	0.023688	0.087292	0.087301	0.148	0.074	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-19	TLS-SB-IA1-8 (4.7-5.7)031010	ARS1-10-00560-046	GAM-A-020	AM-241	0.023561	0.059906	0.059919	0.102	0.051	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-20	TLS-SB-IA1-8 (5.7-6.7)031010	ARS1-10-00560-047	GAM-A-020	AM-241	-0.0262	0.090766	0.090776	0.153	0.0765	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-08	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	GAM-A-020	AM-241	-0.02806	0.10498	0.10499	0.134	0.067	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-11	TLS-SS-IA1-20 (1.1-1.6)031010	ARS1-10-00560-038	GAM-A-020	AM-241	0.037623	0.12685	0.12686	0.214	0.107	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-17	TLS-SS-IA1-8 (1.5-2.0)031010	ARS1-10-00560-044	GAM-A-020	AM-241	0.067049	0.079827	0.079909	0.131	0.0655	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-07	TLS-SS-IA4-B05 (0.3-0.8)031010	ARS1-10-00560-034	GAM-A-020	AM-241	0.033293	0.10815	0.10817	0.184	0.092	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-12	TLS-SB-IA1-20 (1.6-2.6)031010	ARS1-10-00560-039	GAM-A-020	RA-226	9.9214	1.8384	1.9012	2.09	1.045	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-13	TLS-SB-IA1-20 (3.3-4.0)031010	ARS1-10-00560-040	GAM-A-020	RA-226	1.4294	0.92659	0.92922	1.58	0.79	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-14	TLS-SB-IA1-20 (4.8-5.8)031010	ARS1-10-00560-041	GAM-A-020	RA-226	1.3617	1.0138	1.0161	1.55	0.775	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-15	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	GAM-A-020	RA-226	2.7566	1.3039	1.3112	1.55	0.775	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-16	TLS-SB-IA1-20 (6.8-8.0)031010	ARS1-10-00560-043	GAM-A-020	RA-226	-0.85204	2.2148	2.2151	1.77	0.885	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-18	TLS-SB-IA1-8 (3.0-4.0)031010	ARS1-10-00560-045	GAM-A-020	RA-226	2.7572	1.145	1.1529	1.46	0.73	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-19	TLS-SB-IA1-8 (4.7-5.7)031010	ARS1-10-00560-046	GAM-A-020	RA-226	2.4414	1.3371	1.3427	1.64	0.82	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-20	TLS-SB-IA1-8 (5.7-6.7)031010	ARS1-10-00560-047	GAM-A-020	RA-226	4.022	1.2657	1.2808	2.04	1.02	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-08	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	GAM-A-020	RA-226	2.3045	1.0444	1.0504	1.33	0.665	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-11	TLS-SS-IA1-20 (1.1-1.6)031010	ARS1-10-00560-038	GAM-A-020	RA-226	12.083	2.3699	2.4462	2.27	1.135	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-17	TLS-SS-IA1-8 (1.5-2.0)031010	ARS1-10-00560-044	GAM-A-020	RA-226	1.7767	1.5553	1.5577	1.96	0.98	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-07	TLS-SS-IA4-B05 (0.3-0.8)031010	ARS1-10-00560-034	GAM-A-020	RA-226	4.4883	1.7209	1.7348	2.14	1.07	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-12	TLS-SB-IA1-20 (1.6-2.6)031010	ARS1-10-00560-039	GAM-A-020	RA-228	2.2647	0.34197	0.36884	0.223	0.1115	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-13	TLS-SB-IA1-20 (3.3-4.0)031010	ARS1-10-00560-040	GAM-A-020	RA-228	0.95371	0.18395	0.19294	0.124	0.062	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-14	TLS-SB-IA1-20 (4.8-5.8)031010	ARS1-10-00560-041	GAM-A-020	RA-228	0.92841	0.19677	0.20463	0.147	0.0735	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-15	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	GAM-A-020	RA-228	0.88543	0.1848	0.19268	0.242	0.121	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-16	TLS-SB-IA1-20 (6.8-8.0)031010	ARS1-10-00560-043	GAM-A-020	RA-228	0.73398	0.16573	0.17168	0.156	0.078	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-18	TLS-SB-IA1-8 (3.0-4.0)031010	ARS1-10-00560-045	GAM-A-020	RA-228	1.1195	0.24652	0.25581	0.174	0.087	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-19	TLS-SB-IA1-8 (4.7-5.7)031010	ARS1-10-00560-046	GAM-A-020	RA-228	1.1283	0.23038	0.24029	0.193	0.0965	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-20	TLS-SB-IA1-8 (5.7-6.7)031010	ARS1-10-00560-047	GAM-A-020	RA-228	1.373	0.21948	0.23493	0.25	0.125	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-08	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	GAM-A-020	RA-228	0.50111	0.15538	0.15836	0.217	0.1085	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-11	TLS-SS-IA1-20 (1.1-1.6)031010	ARS1-10-00560-038	GAM-A-020	RA-228	1.8621	0.28447	0.30672	0.157	0.0785	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-17	TLS-SS-IA1-8 (1.5-2.0)031010	ARS1-10-00560-044	GAM-A-020	RA-228	0.83104	0.20947	0.21552	0.19	0.095	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-07	TLS-SS-IA4-B05 (0.3-0.8)031010	ARS1-10-00560-034	GAM-A-020	RA-228	0.88624	0.27098	0.27632	0.435	0.2175	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-12	TLS-SB-IA1-20 (1.6-2.6)031010	ARS1-10-00560-039	GAM-A-020	U-234	9.0091	1.2284	1.395	2.18	1.09	pCi	g	ARS1-B10-01926		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01926-13	TLS-SB-IA1-20 (3.3-4.0)031010	ARS1-10-00560-040	GAM-A-020	U-234	1.4181	1.0738	1.0788	1.47	0.735	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-14	TLS-SB-IA1-20 (4.8-5.8)031010	ARS1-10-00560-041	GAM-A-020	U-234	0.61426	0.96443	0.96552	1.38	0.69	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-15	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	GAM-A-020	U-234	1.6117	0.76179	0.77092	1.45	0.725	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-16	TLS-SB-IA1-20 (6.8-8.0)031010	ARS1-10-00560-043	GAM-A-020	U-234	1.5182	0.71684	0.72545	1.33	0.665	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-18	TLS-SB-IA1-8 (3.0-4.0)031010	ARS1-10-00560-045	GAM-A-020	U-234	1.6166	0.69673	0.70675	1.15	0.575	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-19	TLS-SB-IA1-8 (4.7-5.7)031010	ARS1-10-00560-046	GAM-A-020	U-234	1.6031	0.605	0.6167	1.35	0.675	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-20	TLS-SB-IA1-8 (5.7-6.7)031010	ARS1-10-00560-047	GAM-A-020	U-234	3.0778	0.88011	0.90863	1.64	0.82	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-08	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	GAM-A-020	U-234	1.4803	0.83908	0.84608	1.14	0.57	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-11	TLS-SS-IA1-20 (1.1-1.6)031010	ARS1-10-00560-038	GAM-A-020	U-234	8.3948	1.2021	1.3507	1.83	0.915	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-17	TLS-SS-IA1-8 (1.5-2.0)031010	ARS1-10-00560-044	GAM-A-020	U-234	1.2751	0.71114	0.71757	1.17	0.585	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-07	TLS-SS-IA4-B05 (0.3-0.8)031010	ARS1-10-00560-034	GAM-A-020	U-234	3.1003	1.0811	1.106	1.82	0.91	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-12	TLS-SB-IA1-20 (1.6-2.6)031010	ARS1-10-00560-039	GAM-A-020	U-235	0.52541	0.37056	0.37228	0.599	0.2995	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-13	TLS-SB-IA1-20 (3.3-4.0)031010	ARS1-10-00560-040	GAM-A-020	U-235	-0.08376	4.3717	4.3717	0.447	0.2235	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-14	TLS-SB-IA1-20 (4.8-5.8)031010	ARS1-10-00560-041	GAM-A-020	U-235	0.030613	0.23567	0.23568	0.41	0.205	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-15	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	GAM-A-020	U-235	0.05958	0.22543	0.22547	0.39	0.195	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-16	TLS-SB-IA1-20 (6.8-8.0)031010	ARS1-10-00560-043	GAM-A-020	U-235	0.11417	0.2284	0.22853	0.394	0.197	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-18	TLS-SB-IA1-8 (3.0-4.0)031010	ARS1-10-00560-045	GAM-A-020	U-235	-0.02457	0.46473	0.46473	0.446	0.223	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-19	TLS-SB-IA1-8 (4.7-5.7)031010	ARS1-10-00560-046	GAM-A-020	U-235	0.25332	0.22858	0.22924	0.379	0.1895	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-20	TLS-SB-IA1-8 (5.7-6.7)031010	ARS1-10-00560-047	GAM-A-020	U-235	0.28827	0.31926	0.31986	0.534	0.267	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-08	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	GAM-A-020	U-235	0.10675	0.23353	0.23364	0.399	0.1995	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-11	TLS-SS-IA1-20 (1.1-1.6)031010	ARS1-10-00560-038	GAM-A-020	U-235	0.92633	0.44391	0.4484	0.694	0.347	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-17	TLS-SS-IA1-8 (1.5-2.0)031010	ARS1-10-00560-044	GAM-A-020	U-235	0.075261	0.28529	0.28534	0.493	0.2465	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-07	TLS-SS-IA4-B05 (0.3-0.8)031010	ARS1-10-00560-034	GAM-A-020	U-235	0.17343	0.35091	0.35111	0.6	0.3	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-12	TLS-SB-IA1-20 (1.6-2.6)031010	ARS1-10-00560-039	GAM-A-020	U-238	9.0091	1.2284	1.395	2.18	1.09	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-13	TLS-SB-IA1-20 (3.3-4.0)031010	ARS1-10-00560-040	GAM-A-020	U-238	1.4181	1.0738	1.0788	1.47	0.735	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-14	TLS-SB-IA1-20 (4.8-5.8)031010	ARS1-10-00560-041	GAM-A-020	U-238	0.61426	0.96443	0.96552	1.38	0.69	pCi	g	ARS1-B10-01926		1	U	U				
ARS1-B10-01926-15	TLS-SB-IA1-20 (4.8-5.8)031010D	ARS1-10-00560-042	GAM-A-020	U-238	1.6117	0.76179	0.77092	1.45	0.725	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-16	TLS-SB-IA1-20 (6.8-8.0)031010	ARS1-10-00560-043	GAM-A-020	U-238	1.5182	0.71684	0.72545	1.33	0.665	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-18	TLS-SB-IA1-8 (3.0-4.0)031010	ARS1-10-00560-045	GAM-A-020	U-238	1.6166	0.69673	0.70675	1.15	0.575	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-19	TLS-SB-IA1-8 (4.7-5.7)031010	ARS1-10-00560-046	GAM-A-020	U-238	1.6031	0.605	0.6167	1.35	0.675	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-20	TLS-SB-IA1-8 (5.7-6.7)031010	ARS1-10-00560-047	GAM-A-020	U-238	3.0778	0.88011	0.90863	1.64	0.82	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-08	TLS-SB-IA4-B05 (1.0-2.0)031010	ARS1-10-00560-035	GAM-A-020	U-238	1.4803	0.83908	0.84608	1.14	0.57	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-11	TLS-SS-IA1-20 (1.1-1.6)031010	ARS1-10-00560-038	GAM-A-020	U-238	8.3948	1.2021	1.3507	1.83	0.915	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-17	TLS-SS-IA1-8 (1.5-2.0)031010	ARS1-10-00560-044	GAM-A-020	U-238	1.2751	0.71114	0.71757	1.17	0.585	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01926-07	TLS-SS-IA4-B05 (0.3-0.8)031010	ARS1-10-00560-034	GAM-A-020	U-238	3.1003	1.0811	1.106	1.82	0.91	pCi	g	ARS1-B10-01926		1						
ARS1-B10-01946-20	TLS-SB-IA1-8 (24.8-25.8)031010	ARS1-10-00560-048	GAM-A-020	AM-241	0.0361	0.0701	0.070127	0.117	0.0585	pCi	g	ARS1-B10-01946		1	U	U				
ARS1-B10-01946-15	TLS-SS-IA3-BO2 (2.3-2.8)031110	ARS1-10-00576-006	GAM-A-020	AM-241	0.041428	0.083053	0.083083	0.139	0.0695	pCi	g	ARS1-B10-01946		1	U	U				
ARS1-B10-01946-20	TLS-SB-IA1-8 (24.8-25.8)031010	ARS1-10-00560-048	GAM-A-020	RA-226	2.2242	1.0863	1.0917	1.31	0.655	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01946-15	TLS-SS-IA3-BO2 (2.3-2.8)031110	ARS1-10-00576-006	GAM-A-020	RA-226	3.0363	1.3554	1.3635	1.69	0.845	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01946-20	TLS-SB-IA1-8 (24.8-25.8)031010	ARS1-10-00560-048	GAM-A-020	RA-228	0.81473	0.16142	0.1689	0.15	0.075	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01946-15	TLS-SS-IA3-BO2 (2.3-2.8)031110	ARS1-10-00576-006	GAM-A-020	RA-228	0.59969	0.21939	0.22242	0.361	0.1805	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01946-20	TLS-SB-IA1-8 (24.8-25.8)031010	ARS1-10-00560-048	GAM-A-020	U-234	1.0958	0.78383	0.78815	1.07	0.535	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01946-15	TLS-SS-IA3-BO2 (2.3-2.8)031110	ARS1-10-00576-006	GAM-A-020	U-234	1.6699	1.1263	1.1332	1.46	0.73	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01946-20	TLS-SB-IA1-8 (24.8-25.8)031010	ARS1-10-00560-048	GAM-A-020	U-235	0.052697	0.21516	0.21519	0.372	0.186	pCi	g	ARS1-B10-01946		1	U	U				
ARS1-B10-01946-15	TLS-SS-IA3-BO2 (2.3-2.8)031110	ARS1-10-00576-006	GAM-A-020	U-235	0.075016	0.30181	0.30185	0.52	0.26	pCi	g	ARS1-B10-01946		1	U	U				
ARS1-B10-01946-20	TLS-SB-IA1-8 (24.8-25.8)031010	ARS1-10-00560-048	GAM-A-020	U-238	1.0958	0.78383	0.78815	1.07	0.535	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01946-15	TLS-SS-IA3-BO2 (2.3-2.8)031110	ARS1-10-00576-006	GAM-A-020	U-238	1.6699	1.1263	1.1332	1.46	0.73	pCi	g	ARS1-B10-01946		1						
ARS1-B10-01950-20	TLS-SB-IA1-15 (10.5-12.0)031110	ARS1-10-00576-027	GAM-A-020	AM-241	-0.00942	17.559	17.559	0.212	0.106	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-21	TLS-SB-IA1-15 (14.6-15.6)031110	ARS1-10-00576-028	GAM-A-020	AM-241	0.053337	0.11634	0.11637	0.195	0.0975	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-22	TLS-SB-IA1-15 (17.5-18.5)031110	ARS1-10-00576-029	GAM-A-020	AM-241	-0.01594	0.13237	0.13237	0.223	0.1115	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-23	TLS-SB-IA1-15 (19.0-20.0)031110	ARS1-10-00576-030	GAM-A-020	AM-241	0.009275	0.81332	0.81332	1.35	0.675	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-15	TLS-SB-IA3-B04 (2.0-3.0)031110	ARS1-10-00576-022	GAM-A-020	AM-241	0.023163	0.07983	0.07984	0.136	0.068	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-16	TLS-SB-IA3-B04 (6.0-7.0)031110	ARS1-10-00576-023	GAM-A-020	AM-241	-0.03459	0.084004	0.084023	0.117	0.0585	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-07	TLS-SB-IA3-BO5 (13.0-14.0)031110	ARS1-10-00576-014	GAM-A-020	AM-241	-0.01093	0.12151	0.12151	0.116	0.058	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-08	TLS-SB-IA3-BO5 (14.0-15.0)031110	ARS1-10-00576-015	GAM-A-020	AM-241	0.04068	0.09523	0.095255	0.159	0.0795	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-05	TLS-SB-IA3-BO5 (3.0-4.0)031110	ARS1-10-00576-012	GAM-A-020	AM-241	0.044699	0.085109	0.085142	0.142	0.071	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-10	TLS-SB-IA3-D12 (2.0-3.0)031110	ARS1-10-00576-017	GAM-A-020	AM-241	0.01998	0.076802	0.076809	0.13	0.065	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-11	TLS-SB-IA3-D12 (4.0-5.0)031110	ARS1-10-00576-018	GAM-A-020	AM-241	0	0.13373	0.13373	0.226	0.113	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-12	TLS-SB-IA3-D12 (6.0-7.0)031110	ARS1-10-00576-019	GAM-A-020	AM-241	-0.02813	0.093502	0.093514	0.125	0.0625	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-19	TLS-SS-IA1-15 (1.2-1.8)031110	ARS1-10-00576-026	GAM-A-020	AM-241	-0.00031	0.074629	0.074629	0.129	0.0645	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-14	TLS-SS-IA3-B04 (0.8-1.3)031110	ARS1-10-00576-021	GAM-A-020	AM-241	0.077312	0.10067	0.10076	0.166	0.083	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-04	TLS-SS-IA3-BO5 (1.1-1.6)031110	ARS1-10-00576-011	GAM-A-020	AM-241	0.015943	0.070248	0.070253	0.12	0.06	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-09	TLS-SS-IA3-D12 (1.4-1.9)031110	ARS1-10-00576-016	GAM-A-020	AM-241	-0.03264	0.060223	0.060248	0.101	0.0505	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-20	TLS-SB-IA1-15 (10.5-12.0)031110	ARS1-10-00576-027	GAM-A-020	RA-226	3.8371	2.6729	2.6798	2.97	1.485	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-21	TLS-SB-IA1-15 (14.6-15.6)031110	ARS1-10-00576-028	GAM-A-020	RA-226	9.8195	2.0179	2.0742	2.22	1.11	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-22	TLS-SB-IA1-15 (17.5-18.5)031110	ARS1-10-00576-029	GAM-A-020	RA-226	5.9643	1.6425	1.6681	2.6	1.3	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-23	TLS-SB-IA1-15 (19.0-20.0)031110	ARS1-10-00576-030	GAM-A-020	RA-226	594.27	12.437	32.249	8.05	4.025	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-15	TLS-SB-IA3-B04 (2.0-3.0)031110	ARS1-10-00576-022	GAM-A-020	RA-226	4.124	1.2029	1.2205	1.8	0.9	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-16	TLS-SB-IA3-B04 (6.0-7.0)031110	ARS1-10-00576-023	GAM-A-020	RA-226	1.6372	0.92476	0.92821	1.19	0.595	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-07	TLS-SB-IA3-BO5 (13.0-14.0)031110	ARS1-10-00576-014	GAM-A-020	RA-226	1.5462	0.81122	0.81473	1.03	0.515	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-08	TLS-SB-IA3-BO5 (14.0-15.0)031110	ARS1-10-00576-015	GAM-A-020	RA-226	2.1477	0.95863	0.96464	1.25	0.625	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-05	TLS-SB-IA3-BO5 (3.0-4.0)031110	ARS1-10-00576-012	GAM-A-020	RA-226	2.7496	1.3169	1.3241	1.59	0.795	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-10	TLS-SB-IA3-D12 (2.0-3.0)031110	ARS1-10-00576-017	GAM-A-020	RA-226	1.8198	0.90932	0.91366	1.26	0.63	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-11	TLS-SB-IA3-D12 (4.0-5.0)031110	ARS1-10-00576-018	GAM-A-020	RA-226	8.2347	1.8677	1.9106	2.22	1.11	pCi	g	ARS1-B10-01950		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01950-12	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	GAM-A-020	RA-226	1.6211	0.98425	0.98744	1.22	0.61	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-19	TLS-SS-IA1-15 (1.2-1.8)03111C	ARS1-10-00576-026	GAM-A-020	RA-226	2.7271	1.0914	1.0995	1.52	0.76	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-14	TLS-SS-IA3-B04 (0.8-1.3)03111C	ARS1-10-00576-021	GAM-A-020	RA-226	3.3699	1.3511	1.361	1.74	0.87	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-04	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	GAM-A-020	RA-226	3.2997	1.0876	1.0995	1.31	0.655	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-09	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	GAM-A-020	RA-226	1.8896	1.061	1.065	1.25	0.625	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-20	TLS-SB-IA1-15 (10.5-12.0)03111C	ARS1-10-00576-027	GAM-A-020	RA-228	2.3718	0.32329	0.35476	0.291	0.1455	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-21	TLS-SB-IA1-15 (14.6-15.6)03111C	ARS1-10-00576-028	GAM-A-020	RA-228	2.1931	0.29845	0.32708	0.243	0.1215	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-22	TLS-SB-IA1-15 (17.5-18.5)03111C	ARS1-10-00576-029	GAM-A-020	RA-228	2.9565	0.27071	0.32532	0.222	0.111	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-23	TLS-SB-IA1-15 (19.0-20.0)03111C	ARS1-10-00576-030	GAM-A-020	RA-228	0.798	0.65843	0.6602	1.07	0.535	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-15	TLS-SB-IA3-B04 (2.0-3.0)03111C	ARS1-10-00576-022	GAM-A-020	RA-228	1.7489	0.28587	0.30549	0.265	0.1325	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-16	TLS-SB-IA3-B04 (6.0-7.0)03111C	ARS1-10-00576-023	GAM-A-020	RA-228	0.82322	0.13183	0.14108	0.152	0.076	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-07	TLS-SB-IA3-BO5 (13.0-14.0)03111C	ARS1-10-00576-014	GAM-A-020	RA-228	0.67627	0.13008	0.13647	0.129	0.0645	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-08	TLS-SB-IA3-BO5 (14.0-15.0)03111C	ARS1-10-00576-015	GAM-A-020	RA-228	0.77971	0.14486	0.15236	0.154	0.077	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-05	TLS-SB-IA3-BO5 (3.0-4.0)03111C	ARS1-10-00576-012	GAM-A-020	RA-228	1.1058	0.17739	0.18959	0.176	0.088	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-10	TLS-SB-IA3-D12 (2.0-3.0)03111C	ARS1-10-00576-017	GAM-A-020	RA-228	1.0407	0.20074	0.21054	0.155	0.0775	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-11	TLS-SB-IA3-D12 (4.0-5.0)03111C	ARS1-10-00576-018	GAM-A-020	RA-228	3.1973	0.33435	0.38711	0.265	0.1325	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-12	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	GAM-A-020	RA-228	1.0445	0.16105	0.1732	0.176	0.088	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-19	TLS-SS-IA1-15 (1.2-1.8)03111C	ARS1-10-00576-026	GAM-A-020	RA-228	1.0845	0.20932	0.21953	0.149	0.0745	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-14	TLS-SS-IA3-B04 (0.8-1.3)03111C	ARS1-10-00576-021	GAM-A-020	RA-228	1.3903	0.23069	0.2458	0.282	0.141	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-04	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	GAM-A-020	RA-228	1.0704	0.18787	0.1989	0.185	0.0925	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-09	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	GAM-A-020	RA-228	0.93885	0.20068	0.2087	0.127	0.0635	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-20	TLS-SB-IA1-15 (10.5-12.0)03111C	ARS1-10-00576-027	GAM-A-020	U-234	5.0288	1.1351	1.1936	1.96	0.98	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-21	TLS-SB-IA1-15 (14.6-15.6)03111C	ARS1-10-00576-028	GAM-A-020	U-234	6.3434	1.149	1.2397	2.03	1.015	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-22	TLS-SB-IA1-15 (17.5-18.5)03111C	ARS1-10-00576-029	GAM-A-020	U-234	7.1299	1.3037	1.4048	2.14	1.07	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-23	TLS-SB-IA1-15 (19.0-20.0)03111C	ARS1-10-00576-030	GAM-A-020	U-234	629.27	10.675	48.141	11.2	5.6	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-15	TLS-SB-IA3-B04 (2.0-3.0)03111C	ARS1-10-00576-022	GAM-A-020	U-234	3.6808	0.86895	0.90997	1.6	0.8	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-16	TLS-SB-IA3-B04 (6.0-7.0)03111C	ARS1-10-00576-023	GAM-A-020	U-234	1.6175	0.53706	0.55002	0.908	0.454	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-07	TLS-SB-IA3-BO5 (13.0-14.0)03111C	ARS1-10-00576-014	GAM-A-020	U-234	0.45382	0.66927	0.6701	1	0.5	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-08	TLS-SB-IA3-BO5 (14.0-15.0)03111C	ARS1-10-00576-015	GAM-A-020	U-234	3.6257	1.1386	1.1703	1.42	0.71	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-05	TLS-SB-IA3-BO5 (3.0-4.0)03111C	ARS1-10-00576-012	GAM-A-020	U-234	1.6776	0.69648	0.70764	1.28	0.64	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-10	TLS-SB-IA3-D12 (2.0-3.0)03111C	ARS1-10-00576-017	GAM-A-020	U-234	1.2422	0.64984	0.6562	1.21	0.605	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-11	TLS-SB-IA3-D12 (4.0-5.0)03111C	ARS1-10-00576-018	GAM-A-020	U-234	4.1235	1.1101	1.1506	2.24	1.12	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-12	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	GAM-A-020	U-234	0.85514	0.5312	0.53489	0.996	0.498	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-19	TLS-SS-IA1-15 (1.2-1.8)03111C	ARS1-10-00576-026	GAM-A-020	U-234	1.5985	0.76518	0.77457	1.26	0.63	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-14	TLS-SS-IA3-B04 (0.8-1.3)03111C	ARS1-10-00576-021	GAM-A-020	U-234	3.0407	1.0638	1.0881	1.61	0.805	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-04	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	GAM-A-020	U-234	1.8302	0.76494	0.77665	1.31	0.655	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-09	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	GAM-A-020	U-234	1.1907	0.52677	0.53432	0.878	0.439	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-20	TLS-SB-IA1-15 (10.5-12.0)03111C	ARS1-10-00576-027	GAM-A-020	U-235	0.24596	0.43009	0.43042	0.719	0.3595	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-21	TLS-SB-IA1-15 (14.6-15.6)03111C	ARS1-10-00576-028	GAM-A-020	U-235	0.47855	0.39939	0.40071	0.653	0.3265	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-22	TLS-SB-IA1-15 (17.5-18.5)03111C	ARS1-10-00576-029	GAM-A-020	U-235	0.33233	0.40494	0.40557	0.679	0.3395	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-23	TLS-SB-IA1-15 (19.0-20.0)03111C	ARS1-10-00576-030	GAM-A-020	U-235	47.508	2.5619	4.134	2.8	1.4	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-15	TLS-SB-IA3-B04 (2.0-3.0)03111C	ARS1-10-00576-022	GAM-A-020	U-235	-0.04065	2.4793	2.4793	0.572	0.286	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-16	TLS-SB-IA3-B04 (6.0-7.0)03111C	ARS1-10-00576-023	GAM-A-020	U-235	0.19759	0.17646	0.17697	0.291	0.1455	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-07	TLS-SB-IA3-BO5 (13.0-14.0)03111C	ARS1-10-00576-014	GAM-A-020	U-235	-0.0487	3.2182	3.2182	0.355	0.1775	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-08	TLS-SB-IA3-BO5 (14.0-15.0)03111C	ARS1-10-00576-015	GAM-A-020	U-235	0.10346	0.22777	0.22788	0.388	0.194	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-05	TLS-SB-IA3-BO5 (3.0-4.0)03111C	ARS1-10-00576-012	GAM-A-020	U-235	0.13082	0.25392	0.25408	0.431	0.2155	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-10	TLS-SB-IA3-D12 (2.0-3.0)03111C	ARS1-10-00576-017	GAM-A-020	U-235	0.063789	0.22578	0.22582	0.388	0.194	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-11	TLS-SB-IA3-D12 (4.0-5.0)03111C	ARS1-10-00576-018	GAM-A-020	U-235	0.061271	0.40712	0.40714	0.696	0.348	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-12	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	GAM-A-020	U-235	-0.05085	3.6301	3.6301	0.398	0.199	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-19	TLS-SS-IA1-15 (1.2-1.8)03111C	ARS1-10-00576-026	GAM-A-020	U-235	0.18394	0.26427	0.26456	0.445	0.2225	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-14	TLS-SS-IA3-B04 (0.8-1.3)03111C	ARS1-10-00576-021	GAM-A-020	U-235	0.25729	0.32501	0.32548	0.541	0.2705	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-04	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	GAM-A-020	U-235	-0.01042	0.32364	0.32364	0.419	0.2095	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-09	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	GAM-A-020	U-235	0.090368	0.19797	0.19807	0.337	0.1685	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-20	TLS-SB-IA1-15 (10.5-12.0)03111C	ARS1-10-00576-027	GAM-A-020	U-238	5.0288	1.1351	1.1936	1.96	0.98	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-21	TLS-SB-IA1-15 (14.6-15.6)03111C	ARS1-10-00576-028	GAM-A-020	U-238	6.3434	1.149	1.2397	2.03	1.015	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-22	TLS-SB-IA1-15 (17.5-18.5)03111C	ARS1-10-00576-029	GAM-A-020	U-238	7.1299	1.3037	1.4048	2.14	1.07	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-23	TLS-SB-IA1-15 (19.0-20.0)03111C	ARS1-10-00576-030	GAM-A-020	U-238	629.27	10.675	48.141	11.2	5.6	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-15	TLS-SB-IA3-B04 (2.0-3.0)03111C	ARS1-10-00576-022	GAM-A-020	U-238	3.6808	0.86895	0.90997	1.6	0.8	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-16	TLS-SB-IA3-B04 (6.0-7.0)03111C	ARS1-10-00576-023	GAM-A-020	U-238	1.6175	0.53706	0.55002	0.908	0.454	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-07	TLS-SB-IA3-BO5 (13.0-14.0)03111C	ARS1-10-00576-014	GAM-A-020	U-238	0.45382	0.66927	0.6701	1	0.5	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-08	TLS-SB-IA3-BO5 (14.0-15.0)03111C	ARS1-10-00576-015	GAM-A-020	U-238	3.6257	1.1386	1.1703	1.42	0.71	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-05	TLS-SB-IA3-BO5 (3.0-4.0)03111C	ARS1-10-00576-012	GAM-A-020	U-238	1.6776	0.69648	0.70764	1.28	0.64	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-10	TLS-SB-IA3-D12 (2.0-3.0)03111C	ARS1-10-00576-017	GAM-A-020	U-238	1.2422	0.64984	0.6562	1.21	0.605	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-11	TLS-SB-IA3-D12 (4.0-5.0)03111C	ARS1-10-00576-018	GAM-A-020	U-238	4.1235	1.1101	1.1506	2.24	1.12	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-12	TLS-SB-IA3-D12 (6.0-7.0)03111C	ARS1-10-00576-019	GAM-A-020	U-238	0.85514	0.5312	0.53489	0.996	0.498	pCi	g	ARS1-B10-01950		1	U	U				
ARS1-B10-01950-19	TLS-SS-IA1-15 (1.2-1.8)03111C	ARS1-10-00576-026	GAM-A-020	U-238	1.5985	0.76518	0.77457	1.26	0.63	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-14	TLS-SS-IA3-B04 (0.8-1.3)03111C	ARS1-10-00576-021	GAM-A-020	U-238	3.0407	1.0638	1.0881	1.61	0.805	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-04	TLS-SS-IA3-BO5 (1.1-1.6)03111C	ARS1-10-00576-011	GAM-A-020	U-238	1.8302	0.76494	0.77665	1.31	0.655	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01950-09	TLS-SS-IA3-D12 (1.4-1.9)03111C	ARS1-10-00576-016	GAM-A-020	U-238	1.1907	0.52677	0.53432	0.878	0.439	pCi	g	ARS1-B10-01950		1						
ARS1-B10-01963-18	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	GAM-A-020	AM-241	0.037245	0.075837	0.075863	0.127	0.0635	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-19	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	GAM-A-020	AM-241	0.024749	0.062448	0.062461	0.105	0.0525	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-15	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	GAM-A-020	AM-241	-0.00394	0.1578	0.1578	0.199	0.0995	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-16	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	GAM-A-020	AM-241	0.043598	0.13119	0.13121	0.22	0.11	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-17	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	GAM-A-020	AM-241	0.034637	0.12815	0.12816	0.215	0.1075	pCi	g	ARS1-B10-01963		1	U	U				

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01963-05	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	GAM-A-020	AM-241	-0.04241	0.093905	0.093931	0.134	0.067	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-06	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	GAM-A-020	AM-241	-0.03217	0.091994	0.092009	0.11	0.055	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-14	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	GAM-A-020	AM-241	0.013401	0.069454	0.069457	0.119	0.0595	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-20	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	GAM-A-020	AM-241	0.007197	0.07516	0.075161	0.13	0.065	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-23	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	GAM-A-020	AM-241	-0.0322	0.098884	0.098898	0.131	0.0655	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-18	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	GAM-A-020	RA-226	1.9146	0.94573	0.95034	1.54	0.77	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-19	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	GAM-A-020	RA-226	1.1972	0.78762	0.78978	1.02	0.51	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-15	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	GAM-A-020	RA-226	8.0868	1.6263	1.6736	1.91	0.955	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-16	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	GAM-A-020	RA-226	6.2633	1.6268	1.6567	2.01	1.005	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-17	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	GAM-A-020	RA-226	7.761	1.7713	1.8114	2.73	1.365	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-05	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	GAM-A-020	RA-226	2.4311	1.04	1.0468	1.26	0.63	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-06	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	GAM-A-020	RA-226	2.0813	0.8421	0.84855	1.01	0.505	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-14	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	GAM-A-020	RA-226	1.8619	1.0359	1.0399	1.39	0.695	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-20	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	GAM-A-020	RA-226	3.1464	1.2514	1.2608	1.59	0.795	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-23	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	GAM-A-020	RA-226	1.8602	0.9587	0.963	1.29	0.645	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-18	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	GAM-A-020	RA-228	0.89703	0.21059	0.21759	0.163	0.0815	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-19	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	GAM-A-020	RA-228	0.70499	0.12595	0.1331	0.148	0.074	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-15	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	GAM-A-020	RA-228	1.9034	0.29126	0.31357	0.278	0.139	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-16	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	GAM-A-020	RA-228	2.3886	0.38892	0.41491	0.292	0.146	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-17	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	GAM-A-020	RA-228	2.2819	0.32297	0.35172	0.249	0.1245	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-05	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	GAM-A-020	RA-228	1.2098	0.19033	0.20414	0.194	0.097	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-06	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	GAM-A-020	RA-228	0.97832	0.15181	0.16333	0.149	0.0745	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-14	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	GAM-A-020	RA-228	0.64021	0.15921	0.16394	0.163	0.0815	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-20	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	GAM-A-020	RA-228	0.67318	0.22655	0.23024	0.287	0.1435	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-23	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	GAM-A-020	RA-228	0.97531	0.17554	0.18536	0.104	0.052	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-18	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	GAM-A-020	U-234	1.5964	0.56921	0.58173	0.991	0.4955	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-19	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	GAM-A-020	U-234	1.3055	0.54818	0.55649	0.914	0.457	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-15	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	GAM-A-020	U-234	5.7421	1.2468	1.3161	2	1	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-16	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	GAM-A-020	U-234	3.8041	1.1544	1.1887	2.01	1.005	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-17	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	GAM-A-020	U-234	4.3467	1.5468	1.5793	2.09	1.045	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-05	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	GAM-A-020	U-234	1.6827	0.66181	0.67323	1.16	0.58	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-06	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	GAM-A-020	U-234	1.1165	0.54269	0.54884	1.09	0.545	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-14	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	GAM-A-020	U-234	1.877	0.61415	0.63016	1.06	0.53	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-20	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	GAM-A-020	U-234	1.8862	0.77244	0.78475	1.57	0.785	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-23	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	GAM-A-020	U-234	1.2693	0.53206	0.54016	1.05	0.525	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-18	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	GAM-A-020	U-235	0.18369	0.21379	0.21415	0.357	0.1785	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-19	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	GAM-A-020	U-235	0.10891	0.18126	0.18141	0.308	0.154	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-15	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	GAM-A-020	U-235	0.41677	0.3608	0.3619	0.591	0.2955	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-16	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	GAM-A-020	U-235	0.19795	0.40183	0.40206	0.678	0.339	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-17	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	GAM-A-020	U-235	0.48591	0.41231	0.41363	0.68	0.34	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-05	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	GAM-A-020	U-235	-0.02227	0.47828	0.47828	0.396	0.198	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-06	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	GAM-A-020	U-235	0.092204	0.20877	0.20886	0.353	0.1765	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-14	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	GAM-A-020	U-235	0.12476	0.23541	0.23556	0.401	0.2005	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-20	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	GAM-A-020	U-235	0.12331	0.28831	0.28843	0.496	0.248	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-23	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	GAM-A-020	U-235	0.027578	0.22314	0.22315	0.39	0.195	pCi	g	ARS1-B10-01963		1	U	U				
ARS1-B10-01963-18	TLS-SB-IA1-9 (21.1-22.1)03111C	ARS1-10-00576-045	GAM-A-020	U-238	1.5964	0.56921	0.58173	0.991	0.4955	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-19	TLS-SB-IA1-9 (22.8-23.8)03111C	ARS1-10-00576-046	GAM-A-020	U-238	1.3055	0.54818	0.55649	0.914	0.457	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-15	TLS-SB-IA1-9 (5.7-6.7)03111C	ARS1-10-00576-042	GAM-A-020	U-238	5.7421	1.2468	1.3161	2	1	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-16	TLS-SB-IA1-9 (6.7-7.7)03111C	ARS1-10-00576-043	GAM-A-020	U-238	3.8041	1.1544	1.1887	2.01	1.005	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-17	TLS-SB-IA1-9 (6.7-7.7)03111CD	ARS1-10-00576-044	GAM-A-020	U-238	4.3467	1.5468	1.5793	2.09	1.045	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-05	TLS-SB-IA3-D11 (4.0-5.0)03111C	ARS1-10-00576-032	GAM-A-020	U-238	1.6827	0.66181	0.67323	1.16	0.58	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-06	TLS-SB-IA3-D11 (8.0-9.0)03111C	ARS1-10-00576-033	GAM-A-020	U-238	1.1165	0.54269	0.54884	1.09	0.545	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-14	TLS-SS-IA1-9 (2.0-2.6)03111C	ARS1-10-00576-041	GAM-A-020	U-238	1.877	0.61415	0.63016	1.06	0.53	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-20	TLS-SS-IA3-D10 (0.6-1.1)03121C	ARS1-10-00578-001	GAM-A-020	U-238	1.8862	0.77244	0.78475	1.57	0.785	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01963-23	TLS-SB-IA3-D10 (3.3-4.3)03121C	ARS1-10-00578-004	GAM-A-020	U-238	1.2693	0.53206	0.54016	1.05	0.525	pCi	g	ARS1-B10-01963		1						
ARS1-B10-01978-10	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	GAM-A-020	AM-241	-0.14838	0.14741	0.14762	0.234	0.117	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-11	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	GAM-A-020	AM-241	-0.0267	0.0922	0.092211	0.122	0.061	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-12	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	GAM-A-020	AM-241	0.0041	0.075372	0.075373	0.128	0.064	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-14	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	GAM-A-020	AM-241	-0.00574	2.4746	2.4746	0.142	0.071	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-15	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	GAM-A-020	AM-241	0.077027	0.31017	0.3102	0.515	0.2575	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-16	TLS-SB-IA1-11 (13.4-14.4)03121C	ARS1-10-00578-014	GAM-A-020	AM-241	0.032462	0.2907	0.2907	0.485	0.2425	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-17	TLS-SB-IA1-11 (14.4-15.4)03121C	ARS1-10-00578-015	GAM-A-020	AM-241	0.010744	0.27746	0.27746	0.463	0.2315	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-18	TLS-SB-IA1-11 (16.8-17.8)03121C	ARS1-10-00578-016	GAM-A-020	AM-241	0.020109	0.080838	0.080845	0.136	0.068	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-19	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	GAM-A-020	AM-241	-0.02932	0.10596	0.10597	0.133	0.0665	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-20	TLS-SB-IA1-4 (10.8-11.8)03121C	ARS1-10-00578-018	GAM-A-020	AM-241	-0.03186	0.14282	0.14283	0.24	0.12	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-10	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	GAM-A-020	RA-226	2.6138	1.067	1.075	1.75	0.875	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-11	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	GAM-A-020	RA-226	1.9907	0.9627	0.9676	1.27	0.635	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-12	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	GAM-A-020	RA-226	2.512	1.1548	1.1616	1.45	0.725	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-14	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	GAM-A-020	RA-226	1.8713	1.1173	1.121	1.62	0.81	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-15	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	GAM-A-020	RA-226	331.32	6.8071	17.931	4.81	2.405	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-16	TLS-SB-IA1-11 (13.4-14.4)03121C	ARS1-10-00578-014	GAM-A-020	RA-226	136.51	4.4041	7.9922	3.24	1.62	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-17	TLS-SB-IA1-11 (14.4-15.4)03121C	ARS1-10-00578-015	GAM-A-020	RA-226	154.25	4.719	8.8918	2.65	1.325	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-18	TLS-SB-IA1-11 (16.8-17.8)03121C	ARS1-10-00578-016	GAM-A-020	RA-226	2.2805	1.0594	1.0655	1.55	0.775	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-19	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	GAM-A-020	RA-226	1.7658	0.94926	0.95317	1.45	0.725	pCi	g	ARS1-B10-01978		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-01978-20	TLS-SB-IA1-4 (10.8-11.8)031210	ARS1-10-00578-018	GAM-A-020	RA-226	9.0515	1.8561	1.9081	2.8	1.4	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-10	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	GAM-A-020	RA-228	0.87244	0.18263	0.19011	0.278	0.139	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-11	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	GAM-A-020	RA-228	0.80783	0.15453	0.16221	0.142	0.071	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-12	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	GAM-A-020	RA-228	0.82585	0.14352	0.15197	0.234	0.117	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-14	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	GAM-A-020	RA-228	0.79447	0.2325	0.2375	0.251	0.1255	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-15	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	GAM-A-020	RA-228	1.1565	0.33499	0.34222	0.399	0.1995	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-16	TLS-SB-IA1-11 (13.4-14.4)03121C	ARS1-10-00578-014	GAM-A-020	RA-228	2.0581	0.28047	0.30731	0.411	0.2055	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-17	TLS-SB-IA1-11 (14.4-15.4)03121C	ARS1-10-00578-015	GAM-A-020	RA-228	1.7181	0.27845	0.29754	0.242	0.121	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-18	TLS-SB-IA1-11 (16.8-17.8)03121C	ARS1-10-00578-016	GAM-A-020	RA-228	0.89286	0.16173	0.17052	0.167	0.0835	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-19	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	GAM-A-020	RA-228	0.88489	0.23525	0.24137	0.184	0.092	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-20	TLS-SB-IA1-4 (10.8-11.8)03121C	ARS1-10-00578-018	GAM-A-020	RA-228	2.5522	0.39603	0.42556	0.263	0.1315	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-10	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	GAM-A-020	U-234	4.4516	1.5685	1.6033	1.9	0.95	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-11	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	GAM-A-020	U-234	1.7019	0.9666	0.97464	1.26	0.63	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-12	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	GAM-A-020	U-234	1.2475	0.66369	0.67018	1.2	0.6	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-14	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	GAM-A-020	U-234	0.88893	0.78547	0.78818	1.27	0.635	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-15	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	GAM-A-020	U-234	210.71	5.8419	16.769	5.1	2.55	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-16	TLS-SB-IA1-11 (13.4-14.4)03121C	ARS1-10-00578-014	GAM-A-020	U-234	117.21	4.4955	9.7052	4.02	2.01	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-17	TLS-SB-IA1-11 (14.4-15.4)03121C	ARS1-10-00578-015	GAM-A-020	U-234	116.74	4.6033	9.7255	4.07	2.035	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-18	TLS-SB-IA1-11 (16.8-17.8)03121C	ARS1-10-00578-016	GAM-A-020	U-234	2.124	0.82959	0.84458	1.49	0.745	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-19	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	GAM-A-020	U-234	1.4003	1.2104	1.2148	1.6	0.8	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-20	TLS-SB-IA1-4 (10.8-11.8)03121C	ARS1-10-00578-018	GAM-A-020	U-234	6.6451	1.6396	1.7106	2.22	1.11	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-10	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	GAM-A-020	U-235	0.078989	0.28834	0.28839	0.495	0.2475	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-11	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	GAM-A-020	U-235	0.014697	0.2149	0.2149	0.374	0.187	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-12	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	GAM-A-020	U-235	0.067943	0.24266	0.24271	0.418	0.209	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-14	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	GAM-A-020	U-235	0.046257	0.23416	0.23418	0.423	0.2115	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-15	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	GAM-A-020	U-235	20.258	1.4186	1.9815	1.44	0.72	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-16	TLS-SB-IA1-11 (13.4-14.4)03121C	ARS1-10-00578-014	GAM-A-020	U-235	8.7256	0.89059	1.0698	0.941	0.4705	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-17	TLS-SB-IA1-11 (14.4-15.4)03121C	ARS1-10-00578-015	GAM-A-020	U-235	9.0919	0.8835	1.078	0.91	0.455	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-18	TLS-SB-IA1-11 (16.8-17.8)03121C	ARS1-10-00578-016	GAM-A-020	U-235	0.18489	0.26634	0.26664	0.447	0.2235	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-19	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	GAM-A-020	U-235	0.19843	0.28223	0.28256	0.476	0.238	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-20	TLS-SB-IA1-4 (10.8-11.8)03121C	ARS1-10-00578-018	GAM-A-020	U-235	0.47232	0.44685	0.448	0.741	0.3705	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-10	TLS-SB-IA3-D09 (1.0-2.0)03121C	ARS1-10-00578-008	GAM-A-020	U-238	4.4516	1.5685	1.6033	1.9	0.95	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-11	TLS-SB-IA3-D09 (3.0-4.0)03121C	ARS1-10-00578-009	GAM-A-020	U-238	1.7019	0.9666	0.97464	1.26	0.63	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-12	TLS-SB-IA3-D09 (7.0-8.0)03121C	ARS1-10-00578-010	GAM-A-020	U-238	1.2475	0.66369	0.67018	1.2	0.6	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-14	TLS-SS-IA1-11 (1.8-2.3)03121C	ARS1-10-00578-012	GAM-A-020	U-238	0.88893	0.78547	0.78818	1.27	0.635	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-15	TLS-SB-IA1-11 (11.0-12.0)03121C	ARS1-10-00578-013	GAM-A-020	U-238	210.71	5.8419	16.769	5.1	2.55	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-16	TLS-SB-IA1-11 (13.4-14.4)03121C	ARS1-10-00578-014	GAM-A-020	U-238	117.21	4.4955	9.7052	4.02	2.01	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-17	TLS-SB-IA1-11 (14.4-15.4)03121C	ARS1-10-00578-015	GAM-A-020	U-238	116.74	4.6033	9.7255	4.07	2.035	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-18	TLS-SB-IA1-11 (16.8-17.8)03121C	ARS1-10-00578-016	GAM-A-020	U-238	2.124	0.82959	0.84458	1.49	0.745	pCi	g	ARS1-B10-01978		1						
ARS1-B10-01978-19	TLS-SS-IA1-4 (1.1-1.6)03121C	ARS1-10-00578-017	GAM-A-020	U-238	1.4003	1.2104	1.2148	1.6	0.8	pCi	g	ARS1-B10-01978		1	U	U				
ARS1-B10-01978-20	TLS-SB-IA1-4 (10.8-11.8)03121C	ARS1-10-00578-018	GAM-A-020	U-238	6.6451	1.6396	1.7106	2.22	1.11	pCi	g	ARS1-B10-01978		1						
ARS1-B10-02001-04	TLS-SB-IA1-4 (19.0-20.0)03121C	ARS1-10-00578-019	GAM-A-020	AM-241	-0.09368	0.20889	0.20895	0.311	0.1555	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-05	TLS-SB-IA1-4 (21.3-22.3)03121C	ARS1-10-00578-020	GAM-A-020	AM-241	-0.00332	1.0857	1.0857	0.139	0.0695	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-06	TLS-SB-IA1-4 (22.8-23.8)03121C	ARS1-10-00578-021	GAM-A-020	AM-241	0.005603	0.068118	0.068118	0.116	0.058	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-07	TLS-SS-IA3-D08 (0.6-1.1)03121C	ARS1-10-00578-022	GAM-A-020	AM-241	-0.00817	0.32676	0.32676	0.15	0.075	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-08	TLS-SB-IA3-D08 (1.8-2.8)03121C	ARS1-10-00578-023	GAM-A-020	AM-241	0.073161	0.08666	0.08675	0.142	0.071	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-12	TLS-SS-IA1-16 (0.6-1.1)03121C	ARS1-10-00578-027	GAM-A-020	AM-241	-0.00778	0.3462	0.3462	0.207	0.1035	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-13	TLS-SB-IA1-16 (6.2-7.2)03121C	ARS1-10-00578-028	GAM-A-020	AM-241	-0.02613	0.22538	0.22538	0.378	0.189	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-14	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121C	ARS1-10-00578-029	GAM-A-020	AM-241	0.035933	0.24237	0.24238	0.404	0.202	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-15	TLS-SB-IA1-16 (13.2-14.2)03121C	ARS1-10-00578-030	GAM-A-020	AM-241	-0.06385	0.48581	0.48582	0.671	0.3355	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-16	TLS-SB-IA1-16 (13.2-14.2)03121OD	ARS1-10-00578-031	GAM-A-020	AM-241	0.020116	0.10671	0.10671	0.182	0.091	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-17	TLS-SB-IA1-16 (19.0-20.0)03121C	ARS1-10-00578-032	GAM-A-020	AM-241	0.029148	0.14682	0.14682	0.245	0.1225	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-23	TLS-SB-IA6-4 (4.0-5.0)031910	ARS1-10-00610-006	GAM-A-020	AM-241	0.025977	0.084988	0.084999	0.144	0.072	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-04	TLS-SB-IA1-4 (19.0-20.0)03121C	ARS1-10-00578-019	GAM-A-020	RA-226	55.335	3.0002	4.0386	2.02	1.01	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-05	TLS-SB-IA1-4 (21.3-22.3)03121C	ARS1-10-00578-020	GAM-A-020	RA-226	1.4201	0.9859	0.98833	1.68	0.84	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-06	TLS-SB-IA1-4 (22.8-23.8)03121C	ARS1-10-00578-021	GAM-A-020	RA-226	2.27	1.0187	1.025	1.38	0.69	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-07	TLS-SS-IA3-D08 (0.6-1.1)03121C	ARS1-10-00578-022	GAM-A-020	RA-226	2.5626	1.0238	1.0359	1.38	0.69	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-08	TLS-SB-IA3-D08 (1.8-2.8)03121C	ARS1-10-00578-023	GAM-A-020	RA-226	3.7958	1.399	1.4112	1.68	0.84	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-12	TLS-SS-IA1-16 (0.6-1.1)03121C	ARS1-10-00578-027	GAM-A-020	RA-226	5.5224	2.4965	2.5118	2.89	1.445	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-13	TLS-SB-IA1-16 (6.2-7.2)03121C	ARS1-10-00578-028	GAM-A-020	RA-226	41.042	3.769	4.2692	3.66	1.83	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-14	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121C	ARS1-10-00578-029	GAM-A-020	RA-226	70.425	4.2952	5.5035	3.98	1.99	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-15	TLS-SB-IA1-16 (13.2-14.2)03121C	ARS1-10-00578-030	GAM-A-020	RA-226	12.865	7.186	7.2134	11.8	5.9	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-16	TLS-SB-IA1-16 (13.2-14.2)03121OD	ARS1-10-00578-031	GAM-A-020	RA-226	4.2094	1.9381	1.9496	1.98	0.99	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-17	TLS-SB-IA1-16 (19.0-20.0)03121C	ARS1-10-00578-032	GAM-A-020	RA-226	76.917	3.4784	5.1895	3.1	1.55	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-23	TLS-SB-IA6-4 (4.0-5.0)031910	ARS1-10-00610-006	GAM-A-020	RA-226	2.4446	1.2517	1.2577	1.55	0.775	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-04	TLS-SB-IA1-4 (19.0-20.0)03121C	ARS1-10-00578-019	GAM-A-020	RA-228	0.39922	0.20067	0.20214	0.291	0.1455	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-05	TLS-SB-IA1-4 (21.3-22.3)03121C	ARS1-10-00578-020	GAM-A-020	RA-228	1.0758	0.23417	0.2432	0.208	0.104	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-06	TLS-SB-IA1-4 (22.8-23.8)03121C	ARS1-10-00578-021	GAM-A-020	RA-228	0.91939	0.22856	0.23523	0.232	0.116	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-07	TLS-SS-IA3-D08 (0.6-1.1)03121C	ARS1-10-00578-022	GAM-A-020	RA-228	0.95414	0.22215	0.22993	0.28	0.14	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-08	TLS-SB-IA3-D08 (1.8-2.8)03121C	ARS1-10-00578-023	GAM-A-020	RA-228	1.0754	0.28966	0.297	0.274	0.137	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-12	TLS-SS-IA1-16 (0.6-1.1)03121C	ARS1-10-00578-027	GAM-A-020	RA-228	0.67711	0.31035	0.31305	0.448	0.224	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-13	TLS-SB-IA1-16 (6.2-7.2)03121C	ARS1-10-00578-028	GAM-A-020	RA-228	2.5925	0.41046	0.4399	0.44	0.22	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-14	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121C	ARS1-10-00578-029	GAM-A-020	RA-228	1.461	0.42677	0.43598	0.427	0.2135	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-15	TLS-SB-IA1-16 (13.2-14.2)03121C	ARS1-10-00578-030	GAM-A-020	RA-228	2.3601	0.5327	0.55182	0.655	0.3275	pCi	g	ARS1-B10-02001		1						

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ARS1-B10-02001-16	TLS-SB-IA1-16 (13.2-14.2)031210	ARS1-10-00578-031	GAM-A-020	RA-228	1.2301	0.23739	0.24919	0.288	0.144	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-17	TLS-SB-IA1-16 (19.0-20.0)031210	ARS1-10-00578-032	GAM-A-020	RA-228	1.1868	0.26637	0.27589	0.337	0.1685	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-23	TLS-SB-IA6-4 (4.0-5.0)031910	ARS1-10-00610-006	GAM-A-020	RA-228	0.67799	0.21346	0.21751	0.271	0.1355	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-04	TLS-SB-IA1-4 (19.0-20.0)031210	ARS1-10-00578-019	GAM-A-020	U-234	49.457	2.6423	4.4893	2.49	1.245	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-05	TLS-SB-IA1-4 (21.3-22.3)031210	ARS1-10-00578-020	GAM-A-020	U-234	1.3479	0.73036	0.73703	1.53	0.765	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-06	TLS-SB-IA1-4 (22.8-23.8)031210	ARS1-10-00578-021	GAM-A-020	U-234	0.37186	1.0022	1.0026	1.42	0.71	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-07	TLS-SS-IA3-D08 (0.6-1.1)03121	ARS1-10-00578-022	GAM-A-020	U-234	1.5324	1.1028	1.1083	1.41	0.705	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-08	TLS-SB-IA3-D08 (1.8-2.8)03121	ARS1-10-00578-023	GAM-A-020	U-234	1.6093	0.84808	0.85667	1.45	0.725	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-12	TLS-SS-IA1-16 (0.6-1.1)03121	ARS1-10-00578-027	GAM-A-020	U-234	2.2042	1.3716	1.3814	2.18	1.09	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-13	TLS-SB-IA1-16 (6.2-7.2)03121	ARS1-10-00578-028	GAM-A-020	U-234	19.379	2.8021	3.1583	3.23	1.615	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-14	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121	ARS1-10-00578-029	GAM-A-020	U-234	32.437	2.2003	3.2415	3.96	1.98	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-15	TLS-SB-IA1-16 (13.2-14.2)03121	ARS1-10-00578-030	GAM-A-020	U-234	143.7	7.0447	12.682	6.71	3.355	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-16	TLS-SB-IA1-16 (13.2-14.2)031210	ARS1-10-00578-031	GAM-A-020	U-234	1.687	0.94684	0.9549	1.77	0.885	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-17	TLS-SB-IA1-16 (19.0-20.0)03121	ARS1-10-00578-032	GAM-A-020	U-234	71.772	2.2846	5.8211	2.67	1.335	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-23	TLS-SB-IA6-4 (4.0-5.0)03191	ARS1-10-00610-006	GAM-A-020	U-234	1.9886	0.44264	0.46608	1.51	0.755	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-04	TLS-SB-IA1-4 (19.0-20.0)03121	ARS1-10-00578-019	GAM-A-020	U-235	3.2783	0.51303	0.55928	0.563	0.2815	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-05	TLS-SB-IA1-4 (21.3-22.3)03121	ARS1-10-00578-020	GAM-A-020	U-235	0.029642	0.25989	0.2599	0.451	0.2255	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-06	TLS-SB-IA1-4 (22.8-23.8)03121	ARS1-10-00578-021	GAM-A-020	U-235	0.015584	0.24943	0.24943	0.433	0.2165	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-07	TLS-SS-IA3-D08 (0.6-1.1)03121	ARS1-10-00578-022	GAM-A-020	U-235	0.075013	0.26722	0.2673	0.46	0.23	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-08	TLS-SB-IA3-D08 (1.8-2.8)03121	ARS1-10-00578-023	GAM-A-020	U-235	0.16472	0.30136	0.30157	0.509	0.2545	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-12	TLS-SS-IA1-16 (0.6-1.1)03121	ARS1-10-00578-027	GAM-A-020	U-235	0.17483	0.36084	0.36104	0.624	0.312	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-13	TLS-SB-IA1-16 (6.2-7.2)03121	ARS1-10-00578-028	GAM-A-020	U-235	1.5313	0.78234	0.78922	1.25	0.625	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-14	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121	ARS1-10-00578-029	GAM-A-020	U-235	3.3334	0.8793	0.90798	1.1	0.55	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-15	TLS-SB-IA1-16 (13.2-14.2)03121	ARS1-10-00578-030	GAM-A-020	U-235	15.188	2.1231	2.3605	1.83	0.915	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-16	TLS-SB-IA1-16 (13.2-14.2)031210	ARS1-10-00578-031	GAM-A-020	U-235	-0.05722	1.5569	1.5569	0.489	0.2445	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-17	TLS-SB-IA1-16 (19.0-20.0)03121	ARS1-10-00578-032	GAM-A-020	U-235	6.9816	0.72031	0.86382	0.829	0.4145	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-23	TLS-SB-IA6-4 (4.0-5.0)03191	ARS1-10-00610-006	GAM-A-020	U-235	-0.00848	0.42936	0.42936	0.434	0.217	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-04	TLS-SB-IA1-4 (19.0-20.0)03121	ARS1-10-00578-019	GAM-A-020	U-238	49.457	2.6423	4.4893	2.49	1.245	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-05	TLS-SB-IA1-4 (21.3-22.3)03121	ARS1-10-00578-020	GAM-A-020	U-238	1.3479	0.73036	0.73703	1.53	0.765	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-06	TLS-SB-IA1-4 (22.8-23.8)03121	ARS1-10-00578-021	GAM-A-020	U-238	0.37186	1.0022	1.0026	1.42	0.71	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-07	TLS-SS-IA3-D08 (0.6-1.1)03121	ARS1-10-00578-022	GAM-A-020	U-238	1.5324	1.1028	1.1083	1.41	0.705	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-08	TLS-SB-IA3-D08 (1.8-2.8)03121	ARS1-10-00578-023	GAM-A-020	U-238	1.6093	0.84808	0.85667	1.45	0.725	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-12	TLS-SS-IA1-16 (0.6-1.1)03121	ARS1-10-00578-027	GAM-A-020	U-238	2.2042	1.3716	1.3814	2.18	1.09	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-13	TLS-SB-IA1-16 (6.2-7.2)03121	ARS1-10-00578-028	GAM-A-020	U-238	19.379	2.8021	3.1583	3.23	1.615	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-14	TLS-SB-IA1-16 (7.2-8.0/9.1-9.3)03121	ARS1-10-00578-029	GAM-A-020	U-238	32.437	2.2003	3.2415	3.96	1.98	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-15	TLS-SB-IA1-16 (13.2-14.2)03121	ARS1-10-00578-030	GAM-A-020	U-238	143.7	7.0447	12.682	6.71	3.355	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-16	TLS-SB-IA1-16 (13.2-14.2)031210	ARS1-10-00578-031	GAM-A-020	U-238	1.687	0.94684	0.9549	1.77	0.885	pCi	g	ARS1-B10-02001		1	U	U				
ARS1-B10-02001-17	TLS-SB-IA1-16 (19.0-20.0)03121	ARS1-10-00578-032	GAM-A-020	U-238	71.772	2.2846	5.8211	2.67	1.335	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02001-23	TLS-SB-IA6-4 (4.0-5.0)03191	ARS1-10-00610-006	GAM-A-020	U-238	1.9886	0.44264	0.46608	1.51	0.755	pCi	g	ARS1-B10-02001		1						
ARS1-B10-02003-11	TLS-SB-IA2-1 (9.0-10.0)03191	ARS1-10-00610-014	GAM-A-020	AM-241	-0.01145	2.4391	2.4391	0.172	0.086	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-12	TLS-SB-IA2-1 (9.0-10.0)031910	ARS1-10-00610-015	GAM-A-020	AM-241	-0.00503	0.094614	0.094615	0.162	0.081	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-17	TLS-SB-IA2-12 (10.3-11.3)03191	ARS1-10-00610-020	GAM-A-020	AM-241	-0.04095	0.2844	0.28441	0.271	0.1355	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-18	TLS-SB-IA2-12 (24.0-25.0)03191	ARS1-10-00610-021	GAM-A-020	AM-241	0.007291	0.076	0.076001	0.13	0.065	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-13	TLS-SB-IA2-1 (10.0-11.0)03191	ARS1-10-00610-016	GAM-A-020	AM-241	0.007026	0.086017	0.086018	0.149	0.0745	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-15	TLS-SB-IA2-12 (5.4-6.4)03191	ARS1-10-00610-018	GAM-A-020	AM-241	-0.01043	0.36643	0.36643	0.215	0.1075	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-16	TLS-SB-IA2-12 (8.3-9.3)03191	ARS1-10-00610-019	GAM-A-020	AM-241	0.038693	0.1211	0.12112	0.205	0.1025	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-20	TLS-SB-IA2-6 (2.0-3.0)03191	ARS1-10-00610-023	GAM-A-020	AM-241	-0.00997	0.17566	0.17566	0.138	0.069	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-22	TLS-SB-IA2-6 (22.9-23.9)03191	ARS1-10-00610-025	GAM-A-020	AM-241	-0.00228	0.26253	0.26253	0.229	0.1145	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-21	TLS-SB-IA2-6 (9.8-10.8)03191	ARS1-10-00610-024	GAM-A-020	AM-241	0.056129	0.14713	0.14716	0.247	0.1235	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-08	TLS-SB-IA6-2 (9.2-10.0)03191	ARS1-10-00610-011	GAM-A-020	AM-241	0.065531	0.097316	0.097379	0.162	0.081	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-10	TLS-SS-IA2-1 (0.8-1.3)03191	ARS1-10-00610-013	GAM-A-020	AM-241	-0.00664	0.090265	0.090266	0.153	0.0765	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-14	TLS-SS-IA2-12 (0.5-1.0)03191	ARS1-10-00610-017	GAM-A-020	AM-241	0.029459	0.095128	0.095141	0.161	0.0805	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-19	TLS-SS-IA2-6 (0.6-1.1)03191	ARS1-10-00610-022	GAM-A-020	AM-241	0.033324	0.099114	0.09913	0.167	0.0835	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-13	TLS-SB-IA2-1 (10.0-11.0)03191	ARS1-10-00610-016	GAM-A-020	RA-226	2.3882	1.3584	1.3635	1.85	0.925	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-11	TLS-SB-IA2-1 (9.0-10.0)03191	ARS1-10-00610-014	GAM-A-020	RA-226	2.3041	1.6154	1.6195	2.03	1.015	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-12	TLS-SB-IA2-1 (9.0-10.0)031910	ARS1-10-00610-015	GAM-A-020	RA-226	1.994	1.2562	1.26	2.31	1.155	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-17	TLS-SB-IA2-12 (10.3-11.3)03191	ARS1-10-00610-020	GAM-A-020	RA-226	7.2858	1.8221	1.8584	2.21	1.105	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-18	TLS-SB-IA2-12 (24.0-25.0)03191	ARS1-10-00610-021	GAM-A-020	RA-226	2.0235	0.94614	0.95129	1.26	0.63	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-15	TLS-SB-IA2-12 (5.4-6.4)03191	ARS1-10-00610-018	GAM-A-020	RA-226	5.4149	1.9155	1.9337	2.43	1.215	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-16	TLS-SB-IA2-12 (8.3-9.3)03191	ARS1-10-00610-019	GAM-A-020	RA-226	5.5779	1.5102	1.5346	1.89	0.945	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-20	TLS-SB-IA2-6 (2.0-3.0)03191	ARS1-10-00610-023	GAM-A-020	RA-226	1.5962	1.0261	1.029	1.4	0.7	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-22	TLS-SB-IA2-6 (22.9-23.9)03191	ARS1-10-00610-025	GAM-A-020	RA-226	8.4511	2.2711	2.3084	2.58	1.29	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-21	TLS-SB-IA2-6 (9.8-10.8)03191	ARS1-10-00610-024	GAM-A-020	RA-226	5.9606	2.3211	2.3403	2.91	1.455	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-08	TLS-SB-IA6-2 (9.2-10.0)03191	ARS1-10-00610-011	GAM-A-020	RA-226	2.4287	1.4553	1.4604	2.01	1.005	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-10	TLS-SS-IA2-1 (0.8-1.3)03191	ARS1-10-00610-013	GAM-A-020	RA-226	-0.66186	1.8822	1.8825	2	1	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-14	TLS-SS-IA2-12 (0.5-1.0)03191	ARS1-10-00610-017	GAM-A-020	RA-226	1.9583	1.2943	1.298	1.76	0.88	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-19	TLS-SS-IA2-6 (0.6-1.1)03191	ARS1-10-00610-022	GAM-A-020	RA-226	2.2225	1.6243	1.6281	2.07	1.035	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-13	TLS-SB-IA2-1 (10.0-11.0)03191	ARS1-10-00610-016	GAM-A-020	RA-228	0.72713	0.18395	0.18922	0.252	0.126	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-11	TLS-SB-IA2-1 (9.0-10.0)03191	ARS1-10-00610-014	GAM-A-020	RA-228	0.55676	0.23958	0.24202	0.362	0.181	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-12	TLS-SB-IA2-1 (9.0-10.0)031910	ARS1-10-00610-015	GAM-A-020	RA-228	0.094829	0.25496	0.25503	0.459	0.2295	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-17	TLS-SB-IA2-12 (10.3-11.3)03191	ARS1-10-00610-020	GAM-A-020	RA-228	2.8575	0.40445	0.44109	0.295	0.1475	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-18	TLS-SB-IA2-12 (24.0-25.0)03191	ARS1-10-00610-021	GAM-A-020	RA-228	0.87614	0.15417	0.16318	0.19	0.095	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-15	TLS-SB-IA2-12 (5.4-6.4)03191	ARS1-10-00610-018	GAM-A-020	RA-228	2.2546	0.2728	0.30553	0.292	0.146	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-16	TLS-SB-IA2-12 (8.3-9.3)03191	ARS1-10-00610-019	GAM-A-020	RA-228	2.0473	0.35025	0.37186	0.227	0.1135	pCi	g	ARS1-B10-02003		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02003-20	TLS-SB-IA2-6 (2.0-3.0)031910	ARS1-10-00610-023	GAM-A-020	RA-228	0.82567	0.16664	0.17409	0.234	0.117	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-22	TLS-SB-IA2-6 (22.9-23.9)031910	ARS1-10-00610-025	GAM-A-020	RA-228	3.0911	0.42335	0.46347	0.187	0.0935	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-21	TLS-SB-IA2-6 (9.8-10.8)031910	ARS1-10-00610-024	GAM-A-020	RA-228	3.2736	0.35002	0.40395	0.251	0.1255	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-08	TLS-SB-IA6-2 (9.2-10.0)031910	ARS1-10-00610-011	GAM-A-020	RA-228	1.1368	0.26937	0.27801	0.233	0.1165	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-10	TLS-SS-IA2-1 (0.8-1.3)03191	ARS1-10-00610-013	GAM-A-020	RA-228	0.87211	0.18169	0.18932	0.201	0.1005	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-14	TLS-SS-IA2-12 (0.5-1.0)03191	ARS1-10-00610-017	GAM-A-020	RA-228	0.82312	0.2223	0.22781	0.282	0.141	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-19	TLS-SS-IA2-6 (0.6-1.1)03191	ARS1-10-00610-022	GAM-A-020	RA-228	1.131	0.23987	0.24944	0.287	0.1435	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-13	TLS-SB-IA2-1 (10.0-11.0)031910	ARS1-10-00610-016	GAM-A-020	U-234	0.68999	0.82324	0.82487	1.36	0.68	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-11	TLS-SB-IA2-1 (9.0-10.0)03191	ARS1-10-00610-014	GAM-A-020	U-234	1.657	1.0194	1.0266	1.49	0.745	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-12	TLS-SB-IA2-1 (9.0-10.0)031910D	ARS1-10-00610-015	GAM-A-020	U-234	1.6616	0.85397	0.86291	1.89	0.945	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-17	TLS-SB-IA2-12 (10.3-11.3)031910	ARS1-10-00610-020	GAM-A-020	U-234	3.6397	1.1822	1.212	2.04	1.02	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-18	TLS-SB-IA2-12 (24.0-25.0)031910	ARS1-10-00610-021	GAM-A-020	U-234	1.0188	0.60706	0.61165	1.16	0.58	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-15	TLS-SB-IA2-12 (5.4-6.4)03191	ARS1-10-00610-018	GAM-A-020	U-234	3.5474	1.228	1.2553	2.28	1.14	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-16	TLS-SB-IA2-12 (8.3-9.3)03191	ARS1-10-00610-019	GAM-A-020	U-234	3.1744	1.0046	1.0312	1.92	0.96	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-20	TLS-SB-IA2-6 (2.0-3.0)03191	ARS1-10-00610-023	GAM-A-020	U-234	0.5582	0.76756	0.76865	1.25	0.625	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-22	TLS-SB-IA2-6 (22.9-23.9)03191	ARS1-10-00610-025	GAM-A-020	U-234	5.71	1.6624	1.7144	2.44	1.22	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-21	TLS-SB-IA2-6 (9.8-10.8)03191	ARS1-10-00610-024	GAM-A-020	U-234	4.1701	1.2231	1.2608	2.24	1.12	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-08	TLS-SB-IA6-2 (9.2-10.0)03191	ARS1-10-00610-011	GAM-A-020	U-234	2.1211	0.90932	0.92298	1.83	0.915	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-10	TLS-SS-IA2-1 (0.8-1.3)03191	ARS1-10-00610-013	GAM-A-020	U-234	1.7012	0.58751	0.60063	1.59	0.795	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-14	TLS-SS-IA2-12 (0.5-1.0)03191	ARS1-10-00610-017	GAM-A-020	U-234	1.2696	1.2618	1.2653	1.71	0.855	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-19	TLS-SS-IA2-6 (0.6-1.1)03191	ARS1-10-00610-022	GAM-A-020	U-234	0.16628	1.2248	1.2249	1.86	0.93	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-13	TLS-SB-IA2-1 (10.0-11.0)031910	ARS1-10-00610-016	GAM-A-020	U-235	0.065519	0.27996	0.28	0.493	0.2465	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-11	TLS-SB-IA2-1 (9.0-10.0)03191	ARS1-10-00610-014	GAM-A-020	U-235	0.088554	0.31867	0.31873	0.549	0.2745	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-12	TLS-SB-IA2-1 (9.0-10.0)031910D	ARS1-10-00610-015	GAM-A-020	U-235	0.086039	0.30282	0.30288	0.541	0.2705	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-17	TLS-SB-IA2-12 (10.3-11.3)031910	ARS1-10-00610-020	GAM-A-020	U-235	-0.07221	2.6739	2.6739	0.881	0.4405	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-18	TLS-SB-IA2-12 (24.0-25.0)031910	ARS1-10-00610-021	GAM-A-020	U-235	0.01561	0.23303	0.23303	0.407	0.2035	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-15	TLS-SB-IA2-12 (5.4-6.4)03191	ARS1-10-00610-018	GAM-A-020	U-235	-0.04967	1.1748	1.1748	0.698	0.349	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-16	TLS-SB-IA2-12 (8.3-9.3)03191	ARS1-10-00610-019	GAM-A-020	U-235	0.25827	0.38049	0.38089	0.641	0.3205	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-20	TLS-SB-IA2-6 (2.0-3.0)03191	ARS1-10-00610-023	GAM-A-020	U-235	0.13231	0.24403	0.24419	0.415	0.2075	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-22	TLS-SB-IA2-6 (22.9-23.9)03191	ARS1-10-00610-025	GAM-A-020	U-235	0.13581	0.48688	0.48697	0.834	0.417	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-21	TLS-SB-IA2-6 (9.8-10.8)03191	ARS1-10-00610-024	GAM-A-020	U-235	0.29516	0.5036	0.50401	0.842	0.421	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-08	TLS-SB-IA6-2 (9.2-10.0)03191	ARS1-10-00610-011	GAM-A-020	U-235	-0.0999	3.8332	3.8332	0.594	0.297	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-10	TLS-SS-IA2-1 (0.8-1.3)03191	ARS1-10-00610-013	GAM-A-020	U-235	0.065511	0.26143	0.26147	0.456	0.228	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-14	TLS-SS-IA2-12 (0.5-1.0)03191	ARS1-10-00610-017	GAM-A-020	U-235	0.028464	0.289	0.28901	0.505	0.2525	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-19	TLS-SS-IA2-6 (0.6-1.1)03191	ARS1-10-00610-022	GAM-A-020	U-235	0.16903	0.29913	0.29935	0.51	0.255	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-13	TLS-SB-IA2-1 (10.0-11.0)031910	ARS1-10-00610-016	GAM-A-020	U-238	0.68999	0.82324	0.82487	1.36	0.68	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-11	TLS-SB-IA2-1 (9.0-10.0)03191	ARS1-10-00610-014	GAM-A-020	U-238	1.657	1.0194	1.0266	1.49	0.745	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-12	TLS-SB-IA2-1 (9.0-10.0)031910D	ARS1-10-00610-015	GAM-A-020	U-238	1.6616	0.85397	0.86291	1.89	0.945	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-17	TLS-SB-IA2-12 (10.3-11.3)031910	ARS1-10-00610-020	GAM-A-020	U-238	3.6397	1.1822	1.212	2.04	1.02	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-18	TLS-SB-IA2-12 (24.0-25.0)031910	ARS1-10-00610-021	GAM-A-020	U-238	1.0188	0.60706	0.61165	1.16	0.58	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-15	TLS-SB-IA2-12 (5.4-6.4)03191	ARS1-10-00610-018	GAM-A-020	U-238	3.5474	1.228	1.2553	2.28	1.14	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-16	TLS-SB-IA2-12 (8.3-9.3)03191	ARS1-10-00610-019	GAM-A-020	U-238	3.1744	1.0046	1.0312	1.92	0.96	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-20	TLS-SB-IA2-6 (2.0-3.0)03191	ARS1-10-00610-023	GAM-A-020	U-238	0.5582	0.76756	0.76865	1.25	0.625	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-22	TLS-SB-IA2-6 (22.9-23.9)03191	ARS1-10-00610-025	GAM-A-020	U-238	5.71	1.6624	1.7144	2.44	1.22	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-21	TLS-SB-IA2-6 (9.8-10.8)03191	ARS1-10-00610-024	GAM-A-020	U-238	4.1701	1.2231	1.2608	2.24	1.12	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-08	TLS-SB-IA6-2 (9.2-10.0)03191	ARS1-10-00610-011	GAM-A-020	U-238	2.1211	0.90932	0.92298	1.83	0.915	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-10	TLS-SS-IA2-1 (0.8-1.3)03191	ARS1-10-00610-013	GAM-A-020	U-238	1.7012	0.58751	0.60063	1.59	0.795	pCi	g	ARS1-B10-02003		1						
ARS1-B10-02003-14	TLS-SS-IA2-12 (0.5-1.0)03191	ARS1-10-00610-017	GAM-A-020	U-238	1.2696	1.2618	1.2653	1.71	0.855	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02003-19	TLS-SS-IA2-6 (0.6-1.1)03191	ARS1-10-00610-022	GAM-A-020	U-238	0.16628	1.2248	1.2249	1.86	0.93	pCi	g	ARS1-B10-02003		1	U	U				
ARS1-B10-02004-16	TLS-SB-IA2-7 (10.5-11.5)03221	ARS1-10-00629-003	GAM-A-020	AM-241	-0.03322	0.22924	0.22925	0.273	0.1365	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-17	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-004	GAM-A-020	AM-241	-0.00465	0.18613	0.18613	0.381	0.1905	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-18	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-005	GAM-A-020	AM-241	-0.00781	0.31234	0.31234	0.312	0.156	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-19	TLS-SB-IA2-7 (23.0-24.0)03221	ARS1-10-00629-006	GAM-A-020	AM-241	0.002861	0.067903	0.067903	0.117	0.0585	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-15	TLS-SB-IA2-7 (4.0-5.0)03221	ARS1-10-00629-002	GAM-A-020	AM-241	0.026822	0.084099	0.084111	0.142	0.071	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-20	TLS-SS-IA2-13 (0.0-0.5)03221	ARS1-10-00629-007	GAM-A-020	AM-241	0.008235	0.060125	0.060127	0.104	0.052	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-14	TLS-SS-IA2-7 (0.4-1.0)03221	ARS1-10-00629-001	GAM-A-020	AM-241	0.075491	0.080595	0.080692	0.132	0.066	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-16	TLS-SB-IA2-7 (10.5-11.5)03221	ARS1-10-00629-003	GAM-A-020	RA-226	8.5733	2.4053	2.4415	2.68	1.34	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-17	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-004	GAM-A-020	RA-226	9.6243	3.4611	3.4945	4.35	2.175	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-18	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-005	GAM-A-020	RA-226	8.0179	2.3194	2.3523	2.99	1.495	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-19	TLS-SB-IA2-7 (23.0-24.0)03221	ARS1-10-00629-006	GAM-A-020	RA-226	2.2917	1.1499	1.1556	1.36	0.68	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-15	TLS-SB-IA2-7 (4.0-5.0)03221	ARS1-10-00629-002	GAM-A-020	RA-226	2.4848	1.2552	1.2614	1.49	0.745	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-20	TLS-SS-IA2-13 (0.0-0.5)03221	ARS1-10-00629-007	GAM-A-020	RA-226	2.5621	1.036	1.0435	1.33	0.665	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-14	TLS-SS-IA2-7 (0.4-1.0)03221	ARS1-10-00629-001	GAM-A-020	RA-226	2.7062	1.1536	1.1611	1.56	0.78	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-16	TLS-SB-IA2-7 (10.5-11.5)03221	ARS1-10-00629-003	GAM-A-020	RA-228	3.8168	0.36678	0.43449	0.311	0.1555	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-17	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-004	GAM-A-020	RA-228	4.7573	0.49309	0.57098	0.408	0.204	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-18	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-005	GAM-A-020	RA-228	3.1844	0.47828	0.51626	0.331	0.1655	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-19	TLS-SB-IA2-7 (23.0-24.0)03221	ARS1-10-00629-006	GAM-A-020	RA-228	0.66837	0.18202	0.18662	0.206	0.103	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-15	TLS-SB-IA2-7 (4.0-5.0)03221	ARS1-10-00629-002	GAM-A-020	RA-228	1.0274	0.20009	0.20986	0.199	0.0995	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-20	TLS-SS-IA2-13 (0.0-0.5)03221	ARS1-10-00629-007	GAM-A-020	RA-228	0.95902	0.16434	0.17445	0.183	0.0915	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-14	TLS-SS-IA2-7 (0.4-1.0)03221	ARS1-10-00629-001	GAM-A-020	RA-228	0.96798	0.25057	0.25744	0.246	0.123	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-16	TLS-SB-IA2-7 (10.5-11.5)03221	ARS1-10-00629-003	GAM-A-020	U-234	3.7399	1.1913	1.2225	2.25	1.125	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-17	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-004	GAM-A-020	U-234	9.5424	2.0716	2.1905	3.73	1.865	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-18	TLS-SB-IA2-7 (13.0-14.0)03221	ARS1-10-00629-005	GAM-A-020	U-234	4.8071	1.7212	1.757	2.98	1.49	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-19	TLS-SB-IA2-7 (23.0-24.0)03221	ARS1-10-00629-006	GAM-A-020	U-234	0.89906	0.74416	0.74708	1.07	0.535	pCi	g	ARS1-B10-02004		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02004-15	TLS-SB-IA2-7 (4.0-5.0)032210	ARS1-10-00629-002	GAM-A-020	U-234	1.8024	0.63678	0.65037	1.35	0.675	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-20	TLS-SS-IA2-13 (0.0-0.5)03221C	ARS1-10-00629-007	GAM-A-020	U-234	0.94572	1.0528	1.0551	1.45	0.725	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-14	TLS-SS-IA2-7 (0.4-1.0)03221C	ARS1-10-00629-001	GAM-A-020	U-234	1.7338	0.91572	0.92452	1.68	0.84	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-16	TLS-SB-IA2-7 (10.5-11.5)03221C	ARS1-10-00629-003	GAM-A-020	U-235	0.27278	0.46247	0.46284	0.777	0.3885	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-17	TLS-SB-IA2-7 (13.0-14.0)03221C	ARS1-10-00629-004	GAM-A-020	U-235	0.50929	0.69972	0.70058	1.17	0.585	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-18	TLS-SB-IA2-7 (13.0-14.0)032210D	ARS1-10-00629-005	GAM-A-020	U-235	0.34784	0.54232	0.54283	0.915	0.4575	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-19	TLS-SB-IA2-7 (23.0-24.0)03221C	ARS1-10-00629-006	GAM-A-020	U-235	0.12162	0.22508	0.22523	0.379	0.1895	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-15	TLS-SB-IA2-7 (4.0-5.0)032210	ARS1-10-00629-002	GAM-A-020	U-235	0.27482	0.26827	0.26893	0.439	0.2195	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-20	TLS-SS-IA2-13 (0.0-0.5)03221C	ARS1-10-00629-007	GAM-A-020	U-235	0.12933	0.23945	0.23961	0.41	0.205	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-14	TLS-SS-IA2-7 (0.4-1.0)03221C	ARS1-10-00629-001	GAM-A-020	U-235	0.12798	0.25862	0.25876	0.444	0.222	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-16	TLS-SB-IA2-7 (10.5-11.5)03221C	ARS1-10-00629-003	GAM-A-020	U-238	3.7399	1.1913	1.2225	2.25	1.125	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-17	TLS-SB-IA2-7 (13.0-14.0)03221C	ARS1-10-00629-004	GAM-A-020	U-238	9.5424	2.0716	2.1905	3.73	1.865	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-18	TLS-SB-IA2-7 (13.0-14.0)032210D	ARS1-10-00629-005	GAM-A-020	U-238	4.8071	1.7212	1.757	2.98	1.49	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-19	TLS-SB-IA2-7 (23.0-24.0)03221C	ARS1-10-00629-006	GAM-A-020	U-238	0.89906	0.74416	0.74708	1.07	0.535	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-15	TLS-SB-IA2-7 (4.0-5.0)032210	ARS1-10-00629-002	GAM-A-020	U-238	1.8024	0.63678	0.65037	1.35	0.675	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02004-20	TLS-SS-IA2-13 (0.0-0.5)03221C	ARS1-10-00629-007	GAM-A-020	U-238	0.94572	1.0528	1.0551	1.45	0.725	pCi	g	ARS1-B10-02004		1	U	U				
ARS1-B10-02004-14	TLS-SS-IA2-7 (0.4-1.0)03221C	ARS1-10-00629-001	GAM-A-020	U-238	1.7338	0.91572	0.92452	1.68	0.84	pCi	g	ARS1-B10-02004		1						
ARS1-B10-02022-06	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	GAM-A-020	AM-241	0.010229	0.06965	0.069652	0.119	0.0595	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-07	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	GAM-A-020	AM-241	-0.00046	0.089897	0.089897	0.116	0.058	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-04	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	GAM-A-020	AM-241	0.03422	0.078974	0.078995	0.132	0.066	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-05	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	GAM-A-020	AM-241	0.008267	0.080602	0.080603	0.137	0.0685	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-14	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	GAM-A-020	AM-241	0.002006	0.089978	0.089978	0.155	0.0775	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-15	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	GAM-A-020	AM-241	-0.07975	0.18353	0.18358	0.266	0.133	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-16	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	GAM-A-020	AM-241	-0.00765	0.30617	0.30617	0.158	0.079	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-17	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	GAM-A-020	AM-241	-0.04299	0.11546	0.11548	0.161	0.0805	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-19	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	GAM-A-020	AM-241	0.02036	0.068174	0.068183	0.116	0.058	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-20	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	GAM-A-020	AM-241	0.061127	0.078008	0.078078	0.129	0.0645	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-21	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	GAM-A-020	AM-241	-0.00246	0.10624	0.10624	0.181	0.0905	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-22	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	GAM-A-020	AM-241	0.008008	0.088752	0.088753	0.151	0.0755	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-23	TLS-SB-IA2-9 (6.0-7.0)032210D	ARS1-10-00629-027	GAM-A-020	AM-241	-0.00402	0.46288	0.46288	0.173	0.0865	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-12	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	GAM-A-020	AM-241	-0.00201	5.7371	5.7371	0.153	0.0765	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-09	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	GAM-A-020	AM-241	0.038449	0.058858	0.058892	0.0982	0.0491	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-10	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	GAM-A-020	AM-241	-0.02186	0.22689	0.2269	0.175	0.0875	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-11	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	GAM-A-020	AM-241	0.025348	0.085388	0.085398	0.144	0.072	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-13	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	GAM-A-020	AM-241	0.018718	0.083429	0.083435	0.142	0.071	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-18	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	GAM-A-020	AM-241	-0.02785	0.12083	0.12084	0.168	0.084	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-08	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	GAM-A-020	AM-241	-0.02978	0.11612	0.11613	0.165	0.0825	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-17	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	GAM-A-020	RA-224	1.5843	1.0002	1.005	1.58	0.79	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-06	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	GAM-A-020	RA-226	1.8295	1.0905	1.0943	1.33	0.665	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-07	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	GAM-A-020	RA-226	1.265	0.79745	0.79984	1.09	0.545	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-04	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	GAM-A-020	RA-226	1.6022	1.0676	1.0706	1.47	0.735	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-05	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	GAM-A-020	RA-226	2.5886	1.1692	1.1761	1.63	0.815	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-14	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	GAM-A-020	RA-226	2.3814	1.0977	1.1042	1.75	0.875	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-15	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	GAM-A-020	RA-226	8.1062	2.0319	2.0702	2.44	1.22	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-16	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	GAM-A-020	RA-226	2.5711	1.4347	1.4404	1.68	0.84	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-17	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	GAM-A-020	RA-226	2.2675	1.2516	1.2565	1.59	0.795	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-19	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	GAM-A-020	RA-226	2.3099	0.93688	0.94401	1.22	0.61	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-20	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	GAM-A-020	RA-226	1.3401	1.1085	1.1104	1.54	0.77	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-21	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	GAM-A-020	RA-226	2.6392	1.5767	1.582	1.86	0.93	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-22	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	GAM-A-020	RA-226	2.0687	1.2327	1.2368	1.55	0.775	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-23	TLS-SB-IA2-9 (6.0-7.0)032210D	ARS1-10-00629-027	GAM-A-020	RA-226	1.9798	1.3486	1.3522	1.86	0.93	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-12	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	GAM-A-020	RA-226	1.763	0.99657	1.0005	1.37	0.685	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-09	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	GAM-A-020	RA-226	2.0237	1.0501	1.0548	1.45	0.725	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-10	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	GAM-A-020	RA-226	3.6095	1.4901	1.501	1.8	0.9	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-11	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	GAM-A-020	RA-226	2.1123	1.1691	1.1736	1.47	0.735	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-13	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	GAM-A-020	RA-226	1.6899	0.96539	0.96892	1.64	0.82	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-18	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	GAM-A-020	RA-226	1.4146	1.1067	1.109	1.76	0.88	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-08	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	GAM-A-020	RA-226	2.4108	1.3944	1.3997	2.01	1.005	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-06	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	GAM-A-020	RA-228	0.77883	0.16199	0.16895	0.177	0.0885	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-07	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	GAM-A-020	RA-228	0.6946	0.12492	0.13192	0.13	0.065	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-04	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	GAM-A-020	RA-228	0.92332	0.2153	0.22243	0.177	0.0885	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-05	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	GAM-A-020	RA-228	1.3632	0.17817	0.19663	0.178	0.089	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-14	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	GAM-A-020	RA-228	1.1701	0.2035	0.21588	0.18	0.09	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-15	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	GAM-A-020	RA-228	3.3449	0.37585	0.4277	0.367	0.1835	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-16	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	GAM-A-020	RA-228	1.4112	0.25413	0.26858	0.263	0.1315	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-17	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	GAM-A-020	RA-228	1.3318	0.20435	0.21992	0.205	0.1025	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-19	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	GAM-A-020	RA-228	0.57674	0.14226	0.14663	0.148	0.074	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-20	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	GAM-A-020	RA-228	0.68461	0.19294	0.19741	0.183	0.0915	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-21	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	GAM-A-020	RA-228	1.4214	0.25687	0.27112	0.144	0.072	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-22	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	GAM-A-020	RA-228	1.2529	0.2056	0.21936	0.241	0.1205	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-23	TLS-SB-IA2-9 (6.0-7.0)032210D	ARS1-10-00629-027	GAM-A-020	RA-228	1.4312	0.21804	0.23461	0.161	0.0805	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-12	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	GAM-A-020	RA-228	1.1625	0.2115	0.22289	0.158	0.079	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-09	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	GAM-A-020	RA-228	1.033	0.22286	0.23161	0.161	0.0805	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-10	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	GAM-A-020	RA-228	1.4839	0.22895	0.24652	0.207	0.1035	pCi	g	ARS1-B10-02022		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02022-11	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	GAM-A-020	RA-228	1.1909	0.20535	0.21783	0.109	0.0545	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-13	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	GAM-A-020	RA-228	0.72095	0.20449	0.20917	0.261	0.1305	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-18	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	GAM-A-020	RA-228	0.40094	0.22103	0.22235	0.332	0.166	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-08	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	GAM-A-020	RA-228	0.94836	0.19649	0.2047	0.315	0.1575	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-06	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	GAM-A-020	U-234	1.4148	0.56862	0.57802	1.09	0.545	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-07	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	GAM-A-020	U-234	1.0034	0.67489	0.67889	0.969	0.4845	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-04	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	GAM-A-020	U-234	1.0469	0.78808	0.79194	1.46	0.73	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-05	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	GAM-A-020	U-234	1.7528	0.68077	0.69282	1.38	0.69	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-14	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	GAM-A-020	U-234	1.8103	0.90549	0.91518	1.61	0.805	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-15	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	GAM-A-020	U-234	3.5941	1.2286	1.2565	2.66	1.33	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-16	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	GAM-A-020	U-234	1.2405	0.55556	0.56297	1.58	0.79	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-17	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	GAM-A-020	U-234	0.69316	0.91599	0.91741	1.36	0.68	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-19	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	GAM-A-020	U-234	1.9013	0.5767	0.59333	1.11	0.555	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-20	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	GAM-A-020	U-234	1.5009	0.65726	0.66688	1.16	0.58	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-21	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	GAM-A-020	U-234	0.81703	1.0626	1.0644	1.49	0.745	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-22	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	GAM-A-020	U-234	1.5003	0.71253	0.72098	1.18	0.59	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-23	TLS-SB-IA2-9 (6.0-7.0)03221CD	ARS1-10-00629-027	GAM-A-020	U-234	1.7293	1.3416	1.3478	1.77	0.885	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-12	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	GAM-A-020	U-234	1.4822	0.66324	0.67239	1.53	0.765	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-09	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	GAM-A-020	U-234	1.2627	0.72353	0.72944	1.31	0.655	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-10	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	GAM-A-020	U-234	1.9717	0.93347	0.94462	1.73	0.865	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-11	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	GAM-A-020	U-234	1.4244	0.69908	0.70685	1.28	0.64	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-13	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	GAM-A-020	U-234	1.2554	0.95651	0.96093	1.46	0.73	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-18	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	GAM-A-020	U-234	0.39243	1.1198	1.1202	1.74	0.87	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-08	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	GAM-A-020	U-234	2.4805	0.89475	0.91368	1.64	0.82	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-06	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	GAM-A-020	U-235	0.079084	0.23085	0.23091	0.392	0.196	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-07	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	GAM-A-020	U-235	0.067562	0.20615	0.2062	0.354	0.177	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-04	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	GAM-A-020	U-235	0.09453	0.24056	0.24064	0.412	0.206	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-05	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	GAM-A-020	U-235	0.10554	0.27171	0.27181	0.463	0.2315	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-14	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	GAM-A-020	U-235	0.19134	0.29004	0.29033	0.485	0.2425	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-15	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	GAM-A-020	U-235	0.20265	0.48298	0.48318	0.818	0.409	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-16	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	GAM-A-020	U-235	0.038562	0.30123	0.30124	0.516	0.258	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-17	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	GAM-A-020	U-235	0.065402	0.19781	0.19786	0.346	0.173	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-19	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	GAM-A-020	U-235	0.091046	0.24989	0.24996	0.425	0.2125	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-20	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	GAM-A-020	U-235	-0.05882	3.5361	3.5361	0.522	0.261	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-21	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	GAM-A-020	U-235	0.13086	0.28388	0.28402	0.483	0.2415	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-22	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	GAM-A-020	U-235	0.17796	0.26443	0.2647	0.445	0.2225	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-23	TLS-SB-IA2-9 (6.0-7.0)03221CD	ARS1-10-00629-027	GAM-A-020	U-235	0.14643	0.31326	0.31342	0.534	0.267	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-12	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	GAM-A-020	U-235	0.034782	0.25151	0.25152	0.434	0.217	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-09	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	GAM-A-020	U-235	0.11492	0.24478	0.24491	0.417	0.2085	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-10	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	GAM-A-020	U-235	0.15211	0.31984	0.32001	0.539	0.2695	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-11	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	GAM-A-020	U-235	0.1412	0.25131	0.25149	0.427	0.2135	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-13	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	GAM-A-020	U-235	0.19652	0.26752	0.26785	0.451	0.2255	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-18	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	GAM-A-020	U-235	0.042014	0.30222	0.30223	0.528	0.264	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-08	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	GAM-A-020	U-235	0.15023	0.28515	0.28533	0.487	0.2435	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-06	TLS-SB-IA2-13 (12.2-13.2)03221C	ARS1-10-00629-010	GAM-A-020	U-238	1.4148	0.56862	0.57802	1.09	0.545	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-07	TLS-SB-IA2-13 (14.0-15.0)03221C	ARS1-10-00629-011	GAM-A-020	U-238	1.0034	0.67489	0.67889	0.969	0.4845	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-04	TLS-SB-IA2-13 (3.0-4.0)03221C	ARS1-10-00629-008	GAM-A-020	U-238	1.0469	0.78808	0.79194	1.46	0.73	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-05	TLS-SB-IA2-13 (5.0-6.0)03221C	ARS1-10-00629-009	GAM-A-020	U-238	1.7528	0.68077	0.69282	1.38	0.69	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-14	TLS-SB-IA2-8 (5.0-6.0)03221C	ARS1-10-00629-018	GAM-A-020	U-238	1.8103	0.90549	0.91518	1.61	0.805	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-15	TLS-SB-IA2-8 (6.0-7.0)03221C	ARS1-10-00629-019	GAM-A-020	U-238	3.5941	1.2286	1.2565	2.66	1.33	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-16	TLS-SB-IA2-8 (8.0-9.0)03221C	ARS1-10-00629-020	GAM-A-020	U-238	1.2405	0.55556	0.56297	1.58	0.79	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-17	TLS-SB-IA2-8 (9.0-10.0)03221C	ARS1-10-00629-021	GAM-A-020	U-238	0.69316	0.91599	0.91741	1.36	0.68	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-19	TLS-SB-IA2-9 (2.0-3.0)03221C	ARS1-10-00629-023	GAM-A-020	U-238	1.9013	0.5767	0.59333	1.11	0.555	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-20	TLS-SB-IA2-9 (3.0-4.0)03221C	ARS1-10-00629-024	GAM-A-020	U-238	1.5009	0.65726	0.66688	1.16	0.58	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-21	TLS-SB-IA2-9 (4.1-5.1)03221C	ARS1-10-00629-025	GAM-A-020	U-238	0.81703	1.0626	1.0644	1.49	0.745	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-22	TLS-SB-IA2-9 (6.0-7.0)03221C	ARS1-10-00629-026	GAM-A-020	U-238	1.5003	0.71253	0.72098	1.18	0.59	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-23	TLS-SB-IA2-9 (6.0-7.0)03221CD	ARS1-10-00629-027	GAM-A-020	U-238	1.7293	1.3416	1.3478	1.77	0.885	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-12	TLS-SB-IA2-DOE-B2 (10.0-11.0)03221C	ARS1-10-00629-016	GAM-A-020	U-238	1.4822	0.66324	0.67239	1.53	0.765	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-09	TLS-SB-IA2-DOE-B2 (3.0-4.0)03221C	ARS1-10-00629-013	GAM-A-020	U-238	1.2627	0.72353	0.72944	1.31	0.655	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-10	TLS-SB-IA2-DOE-B2 (4.0-5.0)03221C	ARS1-10-00629-014	GAM-A-020	U-238	1.9717	0.93347	0.94462	1.73	0.865	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-11	TLS-SB-IA2-DOE-B2 (8.0-9.0)03221C	ARS1-10-00629-015	GAM-A-020	U-238	1.4244	0.69908	0.70685	1.28	0.64	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02022-13	TLS-SS-IA2-8 (0.3-1.0)03221C	ARS1-10-00629-017	GAM-A-020	U-238	1.2554	0.95651	0.96093	1.46	0.73	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-18	TLS-SS-IA2-9 (0.3-0.8)03221C	ARS1-10-00629-022	GAM-A-020	U-238	0.39243	1.1198	1.1202	1.74	0.87	pCi	g	ARS1-B10-02022		1	U	U				
ARS1-B10-02022-08	TLS-SS-IA2-DOE-B2 (0.4-0.9)03221C	ARS1-10-00629-012	GAM-A-020	U-238	2.4805	0.89475	0.91368	1.64	0.82	pCi	g	ARS1-B10-02022		1						
ARS1-B10-02023-07	TLS-SB-IA2-DOE-B3 (12.0-13.0)03221C	ARS1-10-00629-031	GAM-A-020	AM-241	0.019994	0.062244	0.062254	0.105	0.0525	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-08	TLS-SB-IA2-DOE-B3 (14.0-15.0)03221C	ARS1-10-00629-032	GAM-A-020	AM-241	0.005867	0.068142	0.068143	0.116	0.058	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-05	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221C	ARS1-10-00629-029	GAM-A-020	AM-241	0.03651	0.13369	0.13371	0.224	0.112	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-06	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221C	ARS1-10-00629-030	GAM-A-020	AM-241	0.05187	0.1562	0.15622	0.263	0.1315	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-04	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221C	ARS1-10-00629-028	GAM-A-020	AM-241	0.03681	0.12223	0.12224	0.206	0.103	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-10	TLS-SB-IA2-10 (3.0-4.0)03231C	ARS1-10-00630-002	GAM-A-020	AM-241	0.049689	0.099524	0.099557	0.166	0.083	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-11	TLS-SB-IA2-10 (4.7-5.7)03231C	ARS1-10-00630-003	GAM-A-020	AM-241	-0.05082	0.12764	0.12767	0.159	0.0795	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-12	TLS-SB-IA2-10 (6.0-7.0)03231C	ARS1-10-00630-004	GAM-A-020	AM-241	0	0.079458	0.079459	0.135	0.0675	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-13	TLS-SB-IA2-10 (8.0-9.0)03231C	ARS1-10-00630-005	GAM-A-020	AM-241	0.008925	0.075305	0.075306	0.128	0.064	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-20	TLS-SB-IA2-11 (0.6-1.6)03231C	ARS1-10-00630-012	GAM-A-020	AM-241	0.034708	0.081054	0.081076	0.136	0.068	pCi	g	ARS1-B10-02023		1	U	U				

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02023-21	TLS-SB-IA2-11 (1.6-2.6)032310	ARS1-10-00630-013	GAM-A-020	AM-241	0.031286	0.060966	0.060987	0.103	0.0515	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-22	TLS-SB-IA2-11 (3.8-4.8)032310	ARS1-10-00630-014	GAM-A-020	AM-241	-0.03837	0.11838	0.1184	0.174	0.087	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-23	TLS-SB-IA2-11 (6.0-7.0)032310	ARS1-10-00630-015	GAM-A-020	AM-241	-0.00164	0.18182	0.18182	0.128	0.064	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-15	TLS-SB-IA2-DOE-B1 (2.8-3.8)032310	ARS1-10-00630-007	GAM-A-020	AM-241	0.002251	0.091479	0.091479	0.156	0.078	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-16	TLS-SB-IA2-DOE-B1 (3.8-4.8)032310	ARS1-10-00630-008	GAM-A-020	AM-241	-0.02515	0.10029	0.1003	0.14	0.07	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-17	TLS-SB-IA2-DOE-B1 (4.8-5.8)032310	ARS1-10-00630-009	GAM-A-020	AM-241	0.006839	0.078981	0.078982	0.135	0.0675	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-18	TLS-SB-IA2-DOE-B1 (5.8-6.8)032310	ARS1-10-00630-010	GAM-A-020	AM-241	-0.03345	0.16735	0.16736	0.174	0.087	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-09	TLS-SS-IA2-10 (0.4-0.9)03231	ARS1-10-00630-001	GAM-A-020	AM-241	-0.00639	0.19287	0.19287	0.148	0.074	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-19	TLS-SS-IA2-11 (0.0-0.6)03231	ARS1-10-00630-011	GAM-A-020	AM-241	-0.01326	0.096906	0.096909	0.164	0.082	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-14	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231	ARS1-10-00630-006	GAM-A-020	AM-241	0.008893	0.087738	0.08774	0.15	0.075	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-07	TLS-SB-IA2-DOE-B3 (12.0-13.0)032210	ARS1-10-00629-031	GAM-A-020	RA-226	2.4537	1.3327	1.3381	1.58	0.79	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-08	TLS-SB-IA2-DOE-B3 (14.0-15.0)032210	ARS1-10-00629-032	GAM-A-020	RA-226	2.0652	1.0125	1.0176	1.2	0.6	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-05	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221	ARS1-10-00629-029	GAM-A-020	RA-226	5.7463	2.3507	2.3674	2.86	1.43	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-06	TLS-SB-IA2-DOE-B3 (6.0-7.0)032210	ARS1-10-00629-030	GAM-A-020	RA-226	4.4165	1.8203	1.8331	2.94	1.47	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-04	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221	ARS1-10-00629-028	GAM-A-020	RA-226	7.0062	2.0969	2.1261	2.52	1.26	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-10	TLS-SB-IA2-10 (3.0-4.0)03231	ARS1-10-00630-002	GAM-A-020	RA-226	3.6896	1.1807	1.1944	1.58	0.79	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-11	TLS-SB-IA2-10 (4.7-5.7)03231	ARS1-10-00630-003	GAM-A-020	RA-226	2.0527	1.0664	1.0713	1.42	0.71	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-12	TLS-SB-IA2-10 (6.0-7.0)03231	ARS1-10-00630-004	GAM-A-020	RA-226	1.9562	1.1788	1.1826	1.61	0.805	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-13	TLS-SB-IA2-10 (8.0-9.0)03231	ARS1-10-00630-005	GAM-A-020	RA-226	1.1734	0.8204	0.8224	1.47	0.735	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-20	TLS-SB-IA2-11 (0.6-1.6)03231	ARS1-10-00630-012	GAM-A-020	RA-226	1.7493	1.0523	1.0557	1.75	0.875	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-21	TLS-SB-IA2-11 (1.6-2.6)03231	ARS1-10-00630-013	GAM-A-020	RA-226	2.0099	1.0673	1.0718	1.3	0.65	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-22	TLS-SB-IA2-11 (3.8-4.8)03231	ARS1-10-00630-014	GAM-A-020	RA-226	2.8955	1.3555	1.3633	1.96	0.98	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-23	TLS-SB-IA2-11 (6.0-7.0)03231	ARS1-10-00630-015	GAM-A-020	RA-226	2.2029	1.006	1.0117	1.38	0.69	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-15	TLS-SB-IA2-DOE-B1 (2.8-3.8)03231	ARS1-10-00630-007	GAM-A-020	RA-226	5.3666	1.3038	1.3299	1.48	0.74	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-16	TLS-SB-IA2-DOE-B1 (3.8-4.8)03231	ARS1-10-00630-008	GAM-A-020	RA-226	1.8274	1.2348	1.2382	1.71	0.855	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-17	TLS-SB-IA2-DOE-B1 (4.8-5.8)03231	ARS1-10-00630-009	GAM-A-020	RA-226	2.2333	1.2852	1.2898	1.53	0.765	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-18	TLS-SB-IA2-DOE-B1 (5.8-6.8)03231	ARS1-10-00630-010	GAM-A-020	RA-226	2.5867	1.3058	1.3122	1.62	0.81	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-09	TLS-SS-IA2-10 (0.4-0.9)03231	ARS1-10-00630-001	GAM-A-020	RA-226	3.5595	1.439	1.45	1.74	0.87	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-19	TLS-SS-IA2-11 (0.0-0.6)03231	ARS1-10-00630-011	GAM-A-020	RA-226	1.4311	1.2064	1.2084	2.14	1.07	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-14	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231	ARS1-10-00630-006	GAM-A-020	RA-226	3.1594	1.4318	1.4401	1.79	0.895	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-07	TLS-SB-IA2-DOE-B3 (12.0-13.0)032210	ARS1-10-00629-031	GAM-A-020	RA-228	0.49002	0.18659	0.18898	0.249	0.1245	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-08	TLS-SB-IA2-DOE-B3 (14.0-15.0)032210	ARS1-10-00629-032	GAM-A-020	RA-228	0.74414	0.14098	0.14811	0.169	0.0845	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-05	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221	ARS1-10-00629-029	GAM-A-020	RA-228	2.9294	0.31391	0.36124	0.286	0.143	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-06	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221	ARS1-10-00629-030	GAM-A-020	RA-228	2.9538	0.32964	0.37571	0.335	0.1675	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-04	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221	ARS1-10-00629-028	GAM-A-020	RA-228	1.1387	0.26863	0.27763	0.244	0.122	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-10	TLS-SB-IA2-10 (3.0-4.0)03231	ARS1-10-00630-002	GAM-A-020	RA-228	1.4751	0.23128	0.24818	0.224	0.112	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-11	TLS-SB-IA2-10 (4.7-5.7)03231	ARS1-10-00630-003	GAM-A-020	RA-228	1.1586	0.21585	0.22734	0.214	0.107	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-12	TLS-SB-IA2-10 (6.0-7.0)03231	ARS1-10-00630-004	GAM-A-020	RA-228	0.58138	0.16784	0.17155	0.211	0.1055	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-13	TLS-SB-IA2-10 (8.0-9.0)03231	ARS1-10-00630-005	GAM-A-020	RA-228	0.97414	0.18859	0.19774	0.191	0.0955	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-20	TLS-SB-IA2-11 (0.6-1.6)03231	ARS1-10-00630-012	GAM-A-020	RA-228	0.87639	0.20992	0.21662	0.243	0.1215	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-21	TLS-SB-IA2-11 (1.6-2.6)03231	ARS1-10-00630-013	GAM-A-020	RA-228	0.66077	0.15222	0.15747	0.124	0.062	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-22	TLS-SB-IA2-11 (3.8-4.8)03231	ARS1-10-00630-014	GAM-A-020	RA-228	1.2354	0.22491	0.23701	0.228	0.114	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-23	TLS-SB-IA2-11 (6.0-7.0)03231	ARS1-10-00630-015	GAM-A-020	RA-228	0.90021	0.19142	0.19914	0.21	0.105	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-15	TLS-SB-IA2-DOE-B1 (2.8-3.8)03231	ARS1-10-00630-007	GAM-A-020	RA-228	1.194	0.17604	0.19052	0.176	0.088	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-16	TLS-SB-IA2-DOE-B1 (3.8-4.8)03231	ARS1-10-00630-008	GAM-A-020	RA-228	1.1675	0.22544	0.23625	0.143	0.0715	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-17	TLS-SB-IA2-DOE-B1 (4.8-5.8)03231	ARS1-10-00630-009	GAM-A-020	RA-228	0.8967	0.18555	0.19345	0.187	0.0935	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-18	TLS-SB-IA2-DOE-B1 (5.8-6.8)03231	ARS1-10-00630-010	GAM-A-020	RA-228	1.3751	0.25345	0.26722	0.266	0.133	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-09	TLS-SS-IA2-10 (0.4-0.9)03231	ARS1-10-00630-001	GAM-A-020	RA-228	1.014	0.17869	0.18893	0.219	0.1095	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-19	TLS-SS-IA2-11 (0.0-0.6)03231	ARS1-10-00630-011	GAM-A-020	RA-228	1.3076	0.26644	0.27813	0.192	0.096	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-14	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231	ARS1-10-00630-006	GAM-A-020	RA-228	1.1199	0.22485	0.235	0.203	0.1015	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-07	TLS-SB-IA2-DOE-B3 (12.0-13.0)032210	ARS1-10-00629-031	GAM-A-020	U-234	0.71669	0.55676	0.55936	1.3	0.65	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-08	TLS-SB-IA2-DOE-B3 (14.0-15.0)032210	ARS1-10-00629-032	GAM-A-020	U-234	0.70565	0.71822	0.72009	1.05	0.525	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-05	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221	ARS1-10-00629-029	GAM-A-020	U-234	4.0939	1.141	1.1799	2.21	1.105	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-06	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221	ARS1-10-00629-030	GAM-A-020	U-234	5.8089	2.2754	2.315	2.81	1.405	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-04	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221	ARS1-10-00629-028	GAM-A-020	U-234	1.22	0.95365	0.95784	2.2	1.1	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-10	TLS-SB-IA2-10 (3.0-4.0)03231	ARS1-10-00630-002	GAM-A-020	U-234	2.2063	1.0048	1.0177	1.83	0.915	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-11	TLS-SB-IA2-10 (4.7-5.7)03231	ARS1-10-00630-003	GAM-A-020	U-234	1.2011	0.78784	0.79276	1.43	0.715	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-12	TLS-SB-IA2-10 (6.0-7.0)03231	ARS1-10-00630-004	GAM-A-020	U-234	1.4993	0.59668	0.60674	1.39	0.695	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-13	TLS-SB-IA2-10 (8.0-9.0)03231	ARS1-10-00630-005	GAM-A-020	U-234	1.4517	0.63171	0.64063	1.32	0.66	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-20	TLS-SB-IA2-11 (0.6-1.6)03231	ARS1-10-00630-012	GAM-A-020	U-234	1.5913	0.70766	0.71771	1.24	0.62	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-21	TLS-SB-IA2-11 (1.6-2.6)03231	ARS1-10-00630-013	GAM-A-020	U-234	0.83697	0.57422	0.5775	0.923	0.4615	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-22	TLS-SB-IA2-11 (3.8-4.8)03231	ARS1-10-00630-014	GAM-A-020	U-234	2.0131	0.8755	0.88829	1.71	0.855	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-23	TLS-SB-IA2-11 (6.0-7.0)03231	ARS1-10-00630-015	GAM-A-020	U-234	1.0842	0.84747	0.85119	1.55	0.775	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-15	TLS-SB-IA2-DOE-B1 (2.8-3.8)03231	ARS1-10-00630-007	GAM-A-020	U-234	1.9931	0.64615	0.6625	1.31	0.655	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-16	TLS-SB-IA2-DOE-B1 (3.8-4.8)03231	ARS1-10-00630-008	GAM-A-020	U-234	2.1229	0.85035	0.86497	1.73	0.865	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-17	TLS-SB-IA2-DOE-B1 (4.8-5.8)03231	ARS1-10-00630-009	GAM-A-020	U-234	0.8132	0.79068	0.79293	1.26	0.63	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-18	TLS-SB-IA2-DOE-B1 (5.8-6.8)03231	ARS1-10-00630-010	GAM-A-020	U-234	1.8482	0.85248	0.8632	1.61	0.805	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-09	TLS-SS-IA2-10 (0.4-0.9)03231	ARS1-10-00630-001	GAM-A-020	U-234	1.8218	0.8598	0.87048	1.62	0.81	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-19	TLS-SS-IA2-11 (0.0-0.6)03231	ARS1-10-00630-011	GAM-A-020	U-234	-6.0526	2.9832	3.0161	1.93	0.965	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-14	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231	ARS1-10-00630-006	GAM-A-020	U-234	1.5412	0.89902	0.90646	1.32	0.66	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-07	TLS-SB-IA2-DOE-B3 (12.0-13.0)032210	ARS1-10-00629-031	GAM-A-020	U-235	0.028416	0.25457	0.25458	0.439	0.2195	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-08	TLS-SB-IA2-DOE-B3 (14.0-15.0)032210	ARS1-10-00629-032	GAM-A-020	U-235	0.089892	0.19962	0.19971	0.342	0.171	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-05	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221	ARS1-10-00629-029	GAM-A-020	U-235	0.38537	0.4101	0.41093	0.685	0.3425	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-06	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221	ARS1-10-00629-030	GAM-A-020	U-235	-0.10864	7.3746	7.3746	0.843	0.4215	pCi	g	ARS1-B10-02023		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02023-04	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221C	ARS1-10-00629-028	GAM-A-020	U-235	0.17699	0.38325	0.38344	0.644	0.322	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-10	TLS-SB-IA2-10 (3.0-4.0)03231C	ARS1-10-00630-002	GAM-A-020	U-235	0.19091	0.32086	0.32112	0.541	0.2705	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-11	TLS-SB-IA2-10 (4.7-5.7)03231C	ARS1-10-00630-003	GAM-A-020	U-235	0.084691	0.29518	0.29524	0.502	0.251	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-12	TLS-SB-IA2-10 (6.0-7.0)03231C	ARS1-10-00630-004	GAM-A-020	U-235	0.12348	0.23623	0.23638	0.406	0.203	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-13	TLS-SB-IA2-10 (8.0-9.0)03231C	ARS1-10-00630-005	GAM-A-020	U-235	-0.08835	1.3186	1.3186	0.385	0.1925	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-20	TLS-SB-IA2-11 (0.6-1.6)03231C	ARS1-10-00630-012	GAM-A-020	U-235	0.075542	0.25372	0.25377	0.438	0.219	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-21	TLS-SB-IA2-11 (1.6-2.6)03231C	ARS1-10-00630-013	GAM-A-020	U-235	0.12452	0.18567	0.18587	0.317	0.1585	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-22	TLS-SB-IA2-11 (3.8-4.8)03231C	ARS1-10-00630-014	GAM-A-020	U-235	0.12655	0.32327	0.32339	0.552	0.276	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-23	TLS-SB-IA2-11 (6.0-7.0)03231C	ARS1-10-00630-015	GAM-A-020	U-235	0.09319	0.25424	0.25432	0.436	0.218	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-15	TLS-SB-IA2-DOE-B1 (2.8-3.8)03231C	ARS1-10-00630-007	GAM-A-020	U-235	-0.01293	0.38928	0.38929	0.469	0.2345	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-16	TLS-SB-IA2-DOE-B1 (3.8-4.8)03231C	ARS1-10-00630-008	GAM-A-020	U-235	0.23345	0.30697	0.30738	0.515	0.2575	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-17	TLS-SB-IA2-DOE-B1 (4.8-5.8)03231C	ARS1-10-00630-009	GAM-A-020	U-235	0.13915	0.23326	0.23345	0.396	0.198	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-18	TLS-SB-IA2-DOE-B1 (5.8-6.8)03231C	ARS1-10-00630-010	GAM-A-020	U-235	0.38283	0.3051	0.30621	0.55	0.275	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-09	TLS-SS-IA2-10 (0.4-0.9)03231C	ARS1-10-00630-001	GAM-A-020	U-235	0.12578	0.2713	0.27144	0.465	0.2325	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-19	TLS-SS-IA2-11 (0.0-0.6)03231C	ARS1-10-00630-011	GAM-A-020	U-235	-0.15339	10.068	10.068	0.583	0.2915	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-14	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231C	ARS1-10-00630-006	GAM-A-020	U-235	0.10035	0.2891	0.28918	0.498	0.249	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-07	TLS-SB-IA2-DOE-B3 (12.0-13.0)03221C	ARS1-10-00629-031	GAM-A-020	U-238	0.71669	0.55676	0.55936	1.3	0.65	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-08	TLS-SB-IA2-DOE-B3 (14.0-15.0)03221C	ARS1-10-00629-032	GAM-A-020	U-238	0.70565	0.71822	0.72009	1.05	0.525	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-05	TLS-SB-IA2-DOE-B3 (4.0-5.0)03221C	ARS1-10-00629-029	GAM-A-020	U-238	4.0939	1.141	1.1799	2.21	1.105	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-06	TLS-SB-IA2-DOE-B3 (6.0-7.0)03221C	ARS1-10-00629-030	GAM-A-020	U-238	5.8089	2.2754	2.315	2.81	1.405	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-04	TLS-SS-IA2-DOE-B3 (0.0-0.5)03221C	ARS1-10-00629-028	GAM-A-020	U-238	1.22	0.95365	0.95784	2.2	1.1	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-10	TLS-SB-IA2-10 (3.0-4.0)03231C	ARS1-10-00630-002	GAM-A-020	U-238	2.2063	1.0048	1.0177	1.83	0.915	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-11	TLS-SB-IA2-10 (4.7-5.7)03231C	ARS1-10-00630-003	GAM-A-020	U-238	1.2011	0.78784	0.79276	1.43	0.715	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-12	TLS-SB-IA2-10 (6.0-7.0)03231C	ARS1-10-00630-004	GAM-A-020	U-238	1.4993	0.59668	0.60674	1.39	0.695	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-13	TLS-SB-IA2-10 (8.0-9.0)03231C	ARS1-10-00630-005	GAM-A-020	U-238	1.4517	0.63171	0.64063	1.32	0.66	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-20	TLS-SB-IA2-11 (0.6-1.6)03231C	ARS1-10-00630-012	GAM-A-020	U-238	1.5913	0.70766	0.71771	1.24	0.62	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-21	TLS-SB-IA2-11 (1.6-2.6)03231C	ARS1-10-00630-013	GAM-A-020	U-238	0.83697	0.57422	0.5775	0.923	0.4615	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-22	TLS-SB-IA2-11 (3.8-4.8)03231C	ARS1-10-00630-014	GAM-A-020	U-238	2.0131	0.8755	0.88829	1.71	0.855	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-23	TLS-SB-IA2-11 (6.0-7.0)03231C	ARS1-10-00630-015	GAM-A-020	U-238	1.0842	0.84747	0.85119	1.55	0.775	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-15	TLS-SB-IA2-DOE-B1 (2.8-3.8)03231C	ARS1-10-00630-007	GAM-A-020	U-238	1.9931	0.64615	0.6625	1.31	0.655	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-16	TLS-SB-IA2-DOE-B1 (3.8-4.8)03231C	ARS1-10-00630-008	GAM-A-020	U-238	2.1229	0.85035	0.86497	1.73	0.865	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-17	TLS-SB-IA2-DOE-B1 (4.8-5.8)03231C	ARS1-10-00630-009	GAM-A-020	U-238	0.8132	0.79068	0.79293	1.26	0.63	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-18	TLS-SB-IA2-DOE-B1 (5.8-6.8)03231C	ARS1-10-00630-010	GAM-A-020	U-238	1.8482	0.85248	0.8632	1.61	0.805	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-09	TLS-SS-IA2-10 (0.4-0.9)03231C	ARS1-10-00630-001	GAM-A-020	U-238	1.8218	0.8598	0.87048	1.62	0.81	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02023-19	TLS-SS-IA2-11 (0.0-0.6)03231C	ARS1-10-00630-011	GAM-A-020	U-238	-6.0526	2.9832	3.0161	1.93	0.965	pCi	g	ARS1-B10-02023		1	U	U				
ARS1-B10-02023-14	TLS-SS-IA2-DOE-B1 (0.5-1.0)03231C	ARS1-10-00630-006	GAM-A-020	U-238	1.5412	0.89902	0.90646	1.32	0.66	pCi	g	ARS1-B10-02023		1						
ARS1-B10-02042-06	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	GAM-A-020	AM-241	0.080699	0.093986	0.094087	0.154	0.077	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-07	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	GAM-A-020	AM-241	-0.00585	0.80475	0.80475	0.157	0.0785	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-08	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	GAM-A-020	AM-241	0.027858	0.093508	0.09352	0.158	0.079	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-09	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	GAM-A-020	AM-241	0.020181	0.078053	0.07806	0.133	0.0665	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-05	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	GAM-A-020	AM-241	-0.01345	0.07979	0.079794	0.135	0.0675	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-04	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	GAM-A-020	AM-241	-0.00542	0.44957	0.44957	0.136	0.068	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-22	TLS-SB-IA2-2 (11.2-12.2)03241C	ARS1-10-00654-013	GAM-A-020	AM-241	0.026786	0.068262	0.068276	0.115	0.0575	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-23	TLS-SB-IA2-2 (14.7-15.7)03241C	ARS1-10-00654-014	GAM-A-020	AM-241	0.071289	0.2048	0.20483	0.342	0.171	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-21	TLS-SB-IA2-2 (7.0-8.0)03241C	ARS1-10-00654-012	GAM-A-020	AM-241	0.039094	0.096128	0.096151	0.162	0.081	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-16	TLS-SB-IA2-4 (1.1-2.1)03241C	ARS1-10-00654-007	GAM-A-020	AM-241	-0.00999	0.091366	0.091368	0.156	0.078	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-18	TLS-SB-IA2-4 (12.0-13.0)03241C	ARS1-10-00654-009	GAM-A-020	AM-241	-0.00328	0.092221	0.092222	0.157	0.0785	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-19	TLS-SB-IA2-4 (13.6-14.6)03241C	ARS1-10-00654-010	GAM-A-020	AM-241	-0.02316	0.2056	0.20561	0.154	0.077	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-17	TLS-SB-IA2-4 (6.4-7.4)03241C	ARS1-10-00654-008	GAM-A-020	AM-241	0.044681	0.080123	0.080157	0.134	0.067	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-14	TLS-SB-IA2-5 (10.5-11.5)03241C	ARS1-10-00654-005	GAM-A-020	AM-241	0.054206	0.097482	0.097523	0.162	0.081	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-11	TLS-SB-IA2-5 (2.1-3.1)03241C	ARS1-10-00654-002	GAM-A-020	AM-241	-0.0261	0.093874	0.093884	0.159	0.0795	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-12	TLS-SB-IA2-5 (5.5-6.5)03241C	ARS1-10-00654-003	GAM-A-020	AM-241	0.013329	0.095503	0.095505	0.163	0.0815	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-13	TLS-SB-IA2-5 (9.5-10.5)03241C	ARS1-10-00654-004	GAM-A-020	AM-241	0.019883	0.072577	0.072585	0.124	0.062	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	GAM-A-020	AM-241	-0.00151	0.19068	0.19068	0.145	0.0725	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	GAM-A-020	AM-241	0.010735	0.085815	0.085817	0.147	0.0735	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-10	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	GAM-A-020	AM-241	0.015373	0.10484	0.10484	0.178	0.089	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-06	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	GAM-A-020	RA-226	2.2743	1.5217	1.5257	1.94	0.97	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-07	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	GAM-A-020	RA-226	3.4239	1.4133	1.4232	1.7	0.85	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-08	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	GAM-A-020	RA-226	8.2318	1.4855	1.5416	1.73	0.865	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-09	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	GAM-A-020	RA-226	2.1823	0.92424	0.93037	1.51	0.755	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-05	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	GAM-A-020	RA-226	1.751	0.97629	0.98003	1.69	0.845	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-04	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	GAM-A-020	RA-226	2.1389	1.3106	1.315	1.61	0.805	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-22	TLS-SB-IA2-2 (11.2-12.2)03241C	ARS1-10-00654-013	GAM-A-020	RA-226	2.9989	1.2777	1.2861	2.16	1.08	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-23	TLS-SB-IA2-2 (14.7-15.7)03241C	ARS1-10-00654-014	GAM-A-020	RA-226	62.447	3.5628	4.7434	2.72	1.36	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-21	TLS-SB-IA2-2 (7.0-8.0)03241C	ARS1-10-00654-012	GAM-A-020	RA-226	1.8193	1.4014	1.4043	1.84	0.92	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-16	TLS-SB-IA2-4 (1.1-2.1)03241C	ARS1-10-00654-007	GAM-A-020	RA-226	1.934	1.1972	1.201	1.6	0.8	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-18	TLS-SB-IA2-4 (12.0-13.0)03241C	ARS1-10-00654-009	GAM-A-020	RA-226	5.6893	1.2667	1.2968	1.94	0.97	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-19	TLS-SB-IA2-4 (13.6-14.6)03241C	ARS1-10-00654-010	GAM-A-020	RA-226	2.8778	1.2654	1.2736	1.69	0.845	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-17	TLS-SB-IA2-4 (6.4-7.4)03241C	ARS1-10-00654-008	GAM-A-020	RA-226	2.31	1.2432	1.2483	1.67	0.835	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-14	TLS-SB-IA2-5 (10.5-11.5)03241C	ARS1-10-00654-005	GAM-A-020	RA-226	2.1095	1.2436	1.2479	2.15	1.075	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-11	TLS-SB-IA2-5 (2.1-3.1)03241C	ARS1-10-00654-002	GAM-A-020	RA-226	1.9361	1.0216	1.026	1.68	0.84	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-12	TLS-SB-IA2-5 (5.5-6.5)03241C	ARS1-10-00654-003	GAM-A-020	RA-226	2.5558	1.1558	1.1629	1.55	0.775	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-13	TLS-SB-IA2-5 (9.5-10.5)03241C	ARS1-10-00654-004	GAM-A-020	RA-226	2.7221	1.1327	1.1405	1.62	0.81	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	GAM-A-020	RA-226	1.9053	1.0673	1.0713	1.41	0.705	pCi	g	ARS1-B10-02042		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02042-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	GAM-A-020	RA-226	2.5169	1.4136	1.4193	1.67	0.835	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-10	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	GAM-A-020	RA-226	1.2421	1.1989	1.2004	2.17	1.085	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-06	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	GAM-A-020	RA-228	1.3372	0.21599	0.23089	0.23	0.115	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-07	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	GAM-A-020	RA-228	1.0936	0.20791	0.21836	0.208	0.104	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-08	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	GAM-A-020	RA-228	0.42701	0.17017	0.17212	0.32	0.16	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-09	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	GAM-A-020	RA-228	1.0058	0.2072	0.2161	0.17	0.085	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-05	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	GAM-A-020	RA-228	1.0764	0.21462	0.22445	0.204	0.102	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-04	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	GAM-A-020	RA-228	1.0947	0.22033	0.23042	0.191	0.0955	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-22	TLS-SB-IA2-2 (11.2-12.2)03241C	ARS1-10-00654-013	GAM-A-020	RA-228	1.5076	0.29495	0.30897	0.21	0.105	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-23	TLS-SB-IA2-2 (14.7-15.7)03241C	ARS1-10-00654-014	GAM-A-020	RA-228	1.3272	0.3482	0.35767	0.301	0.1505	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-21	TLS-SB-IA2-2 (7.0-8.0)03241C	ARS1-10-00654-012	GAM-A-020	RA-228	1.0937	0.25268	0.26135	0.207	0.1035	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-16	TLS-SB-IA2-4 (1.1-2.1)03241C	ARS1-10-00654-007	GAM-A-020	RA-228	1.2943	0.28383	0.29461	0.244	0.122	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-18	TLS-SB-IA2-4 (12.0-13.0)03241C	ARS1-10-00654-009	GAM-A-020	RA-228	1.0121	0.21462	0.22333	0.179	0.0895	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-19	TLS-SB-IA2-4 (13.6-14.6)03241C	ARS1-10-00654-010	GAM-A-020	RA-228	1.5387	0.25691	0.27383	0.267	0.1335	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-17	TLS-SB-IA2-4 (6.4-7.4)03241C	ARS1-10-00654-008	GAM-A-020	RA-228	1.1801	0.24938	0.25957	0.181	0.0905	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-14	TLS-SB-IA2-5 (10.5-11.5)03241C	ARS1-10-00654-005	GAM-A-020	RA-228	1.4506	0.24844	0.26374	0.155	0.0775	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-11	TLS-SB-IA2-5 (2.1-3.1)03241C	ARS1-10-00654-002	GAM-A-020	RA-228	1.0351	0.20474	0.21426	0.183	0.0915	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-12	TLS-SB-IA2-5 (5.5-6.5)03241C	ARS1-10-00654-003	GAM-A-020	RA-228	1.055	0.20722	0.21717	0.295	0.1475	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-13	TLS-SB-IA2-5 (9.5-10.5)03241C	ARS1-10-00654-004	GAM-A-020	RA-228	1.2687	0.25816	0.26952	0.275	0.1375	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	GAM-A-020	RA-228	0.84774	0.16104	0.16915	0.171	0.0855	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	GAM-A-020	RA-228	0.50233	0.21485	0.21706	0.305	0.1525	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-10	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	GAM-A-020	RA-228	1.3059	0.29584	0.30638	0.236	0.118	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-06	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	GAM-A-020	U-234	1.3935	0.73221	0.73967	1.27	0.635	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-07	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	GAM-A-020	U-234	1.6292	0.75972	0.76907	1.34	0.67	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-08	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	GAM-A-020	U-234	5.447	0.98122	1.062	1.68	0.84	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-09	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	GAM-A-020	U-234	2.1647	0.77551	0.79161	1.38	0.69	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-05	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	GAM-A-020	U-234	1.9205	0.72587	0.73942	1.45	0.725	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-04	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	GAM-A-020	U-234	1.8682	0.84107	0.85217	1.61	0.805	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-22	TLS-SB-IA2-2 (11.2-12.2)03241C	ARS1-10-00654-013	GAM-A-020	U-234	2.8769	0.89913	0.92358	1.75	0.875	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-23	TLS-SB-IA2-2 (14.7-15.7)03241C	ARS1-10-00654-014	GAM-A-020	U-234	69.124	3.417	6.1161	3.1	1.55	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-21	TLS-SB-IA2-2 (7.0-8.0)03241C	ARS1-10-00654-012	GAM-A-020	U-234	1.5752	1.1194	1.1257	1.49	0.745	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-16	TLS-SB-IA2-4 (1.1-2.1)03241C	ARS1-10-00654-007	GAM-A-020	U-234	1.0333	0.87152	0.87498	1.3	0.65	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-18	TLS-SB-IA2-4 (12.0-13.0)03241C	ARS1-10-00654-009	GAM-A-020	U-234	5.1143	1.5885	1.6322	1.99	0.995	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-19	TLS-SB-IA2-4 (13.6-14.6)03241C	ARS1-10-00654-010	GAM-A-020	U-234	1.3985	0.93269	0.93832	1.73	0.865	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-17	TLS-SB-IA2-4 (6.4-7.4)03241C	ARS1-10-00654-008	GAM-A-020	U-234	1.4537	0.92191	0.92806	1.68	0.84	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-14	TLS-SB-IA2-5 (10.5-11.5)03241C	ARS1-10-00654-005	GAM-A-020	U-234	2.1205	0.92796	0.94091	1.68	0.84	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-11	TLS-SB-IA2-5 (2.1-3.1)03241C	ARS1-10-00654-002	GAM-A-020	U-234	1.4815	0.80804	0.81568	1.39	0.695	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-12	TLS-SB-IA2-5 (5.5-6.5)03241C	ARS1-10-00654-003	GAM-A-020	U-234	0.93143	1.0846	1.0868	1.51	0.755	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-13	TLS-SB-IA2-5 (9.5-10.5)03241C	ARS1-10-00654-004	GAM-A-020	U-234	1.5928	1.2736	1.2789	1.76	0.88	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	GAM-A-020	U-234	1.2729	1.0676	1.0717	1.48	0.74	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	GAM-A-020	U-234	1.4625	0.96454	0.97049	1.32	0.66	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-10	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	GAM-A-020	U-234	3.4906	1.2165	1.2432	1.98	0.99	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-06	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	GAM-A-020	U-235	0.06168	0.29411	0.29414	0.508	0.254	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-07	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	GAM-A-020	U-235	0.12844	0.27699	0.27712	0.474	0.237	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-08	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	GAM-A-020	U-235	0.4038	0.3094	0.31062	0.505	0.2525	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-09	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	GAM-A-020	U-235	0.003981	0.25437	0.25437	0.444	0.222	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-05	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	GAM-A-020	U-235	-0.05537	0.63638	0.63639	0.453	0.2265	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-04	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	GAM-A-020	U-235	0.18288	0.2683	0.26859	0.448	0.224	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-22	TLS-SB-IA2-2 (11.2-12.2)03241C	ARS1-10-00654-013	GAM-A-020	U-235	0.16554	0.32186	0.32206	0.552	0.276	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-23	TLS-SB-IA2-2 (14.7-15.7)03241C	ARS1-10-00654-014	GAM-A-020	U-235	4.2464	0.61316	0.67831	0.654	0.327	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-21	TLS-SB-IA2-2 (7.0-8.0)03241C	ARS1-10-00654-012	GAM-A-020	U-235	0.14173	0.29907	0.29923	0.509	0.2545	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-16	TLS-SB-IA2-4 (1.1-2.1)03241C	ARS1-10-00654-007	GAM-A-020	U-235	0.15264	0.26182	0.26203	0.444	0.222	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-18	TLS-SB-IA2-4 (12.0-13.0)03241C	ARS1-10-00654-009	GAM-A-020	U-235	0.42205	0.31943	0.32071	0.526	0.263	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-19	TLS-SB-IA2-4 (13.6-14.6)03241C	ARS1-10-00654-010	GAM-A-020	U-235	0.27957	0.34744	0.34797	0.576	0.288	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-17	TLS-SB-IA2-4 (6.4-7.4)03241C	ARS1-10-00654-008	GAM-A-020	U-235	0.1427	0.27732	0.27749	0.473	0.2365	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-14	TLS-SB-IA2-5 (10.5-11.5)03241C	ARS1-10-00654-005	GAM-A-020	U-235	0.16237	0.32099	0.32117	0.549	0.2745	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-11	TLS-SB-IA2-5 (2.1-3.1)03241C	ARS1-10-00654-002	GAM-A-020	U-235	-0.14653	0.5194	0.5195	0.409	0.2045	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-12	TLS-SB-IA2-5 (5.5-6.5)03241C	ARS1-10-00654-003	GAM-A-020	U-235	-0.08855	0.67393	0.67396	0.482	0.241	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-13	TLS-SB-IA2-5 (9.5-10.5)03241C	ARS1-10-00654-004	GAM-A-020	U-235	0.042682	0.29905	0.29906	0.519	0.2595	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	GAM-A-020	U-235	0.16617	0.22737	0.22765	0.385	0.1925	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	GAM-A-020	U-235	0.067428	0.2409	0.24094	0.415	0.2075	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-10	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	GAM-A-020	U-235	0.053265	0.29023	0.29026	0.512	0.256	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-06	TLS-SB-IA2-3 (10.0-11.0)03231C	ARS1-10-00630-018	GAM-A-020	U-238	1.3935	0.73221	0.73967	1.27	0.635	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-07	TLS-SB-IA2-3 (10.0-11.0)03231OD	ARS1-10-00630-019	GAM-A-020	U-238	1.6292	0.75972	0.76907	1.34	0.67	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-08	TLS-SB-IA2-3 (13.5-14.5)03231C	ARS1-10-00630-020	GAM-A-020	U-238	5.447	0.98122	1.062	1.68	0.84	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-09	TLS-SB-IA2-3 (28.0-29.0)03231C	ARS1-10-00630-021	GAM-A-020	U-238	2.1647	0.77551	0.79161	1.38	0.69	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-05	TLS-SB-IA2-3 (5.0-6.0)03231C	ARS1-10-00630-017	GAM-A-020	U-238	1.9205	0.72587	0.73942	1.45	0.725	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-04	TLS-SS-IA2-3 (0.5-1.0)03231C	ARS1-10-00630-016	GAM-A-020	U-238	1.8682	0.84107	0.85217	1.61	0.805	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-22	TLS-SB-IA2-2 (11.2-12.2)03241C	ARS1-10-00654-013	GAM-A-020	U-238	2.8769	0.89913	0.92358	1.75	0.875	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-23	TLS-SB-IA2-2 (14.7-15.7)03241C	ARS1-10-00654-014	GAM-A-020	U-238	69.124	3.417	6.1161	3.1	1.55	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-21	TLS-SB-IA2-2 (7.0-8.0)03241C	ARS1-10-00654-012	GAM-A-020	U-238	1.5752	1.1194	1.1257	1.49	0.745	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-16	TLS-SB-IA2-4 (1.1-2.1)03241C	ARS1-10-00654-007	GAM-A-020	U-238	1.0333	0.87152	0.87498	1.3	0.65	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-18	TLS-SB-IA2-4 (12.0-13.0)03241C	ARS1-10-00654-009	GAM-A-020	U-238	5.1143	1.5885	1.6322	1.99	0.995	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-19	TLS-SB-IA2-4 (13.6-14.6)03241C	ARS1-10-00654-010	GAM-A-020	U-238	1.3985	0.93269	0.93832	1.73	0.865	pCi	g	ARS1-B10-02042		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02042-17	TLS-SB-IA2-4 (6.4-7.4)032410	ARS1-10-00654-008	GAM-A-020	U-238	1.4537	0.92191	0.92806	1.68	0.84	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-14	TLS-SB-IA2-5 (10.5-11.5)032410	ARS1-10-00654-005	GAM-A-020	U-238	2.1205	0.92796	0.94091	1.68	0.84	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-11	TLS-SB-IA2-5 (2.1-3.1)032410	ARS1-10-00654-002	GAM-A-020	U-238	1.4815	0.80804	0.81568	1.39	0.695	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-12	TLS-SB-IA2-5 (5.5-6.5)032410	ARS1-10-00654-003	GAM-A-020	U-238	0.93143	1.0846	1.0868	1.51	0.755	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-13	TLS-SB-IA2-5 (9.5-10.5)032410	ARS1-10-00654-004	GAM-A-020	U-238	1.5928	1.2736	1.2789	1.76	0.88	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-20	TLS-SS-IA2-2 (0.5-1.0)03241C	ARS1-10-00654-011	GAM-A-020	U-238	1.2729	1.0676	1.0717	1.48	0.74	pCi	g	ARS1-B10-02042		1	U	U				
ARS1-B10-02042-15	TLS-SS-IA2-4 (0.6-1.1)03241C	ARS1-10-00654-006	GAM-A-020	U-238	1.4625	0.96454	0.97049	1.32	0.66	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02042-10	TLS-SS-IA2-5 (0.6-1.1)03241C	ARS1-10-00654-001	GAM-A-020	U-238	3.4906	1.2165	1.2432	1.98	0.99	pCi	g	ARS1-B10-02042		1						
ARS1-B10-02049-11	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	GAM-A-020	AM-241	0.008762	0.085861	0.085862	0.146	0.073	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-12	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	GAM-A-020	AM-241	0.05992	0.089014	0.089069	0.148	0.074	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-13	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	GAM-A-020	AM-241	-0.00292	0.27796	0.27796	0.177	0.0885	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-14	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	GAM-A-020	AM-241	-0.01395	0.19806	0.19806	0.18	0.09	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-15	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	GAM-A-020	AM-241	0.02188	0.10191	0.10192	0.172	0.086	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-06	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	GAM-A-020	AM-241	0.01001	0.09544	0.095442	0.163	0.0815	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-07	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	GAM-A-020	AM-241	-0.03878	0.1276	0.12762	0.185	0.0925	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-08	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	GAM-A-020	AM-241	-0.02479	0.099836	0.099845	0.169	0.0845	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-09	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	GAM-A-020	AM-241	-0.00424	0.16969	0.16969	0.149	0.0745	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-17	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	GAM-A-020	AM-241	0.034359	0.085595	0.085615	0.144	0.072	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-18	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	GAM-A-020	AM-241	-0.01148	0.15393	0.15393	0.13	0.065	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-19	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	GAM-A-020	AM-241	0.022708	0.084095	0.084103	0.143	0.0715	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-20	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	GAM-A-020	AM-241	0.002756	0.082942	0.082942	0.141	0.0705	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-04	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	GAM-A-020	AM-241	0.067067	0.12056	0.12061	0.201	0.1005	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-10	TLS-SS-IA2-14 (1.2-1.7)03241C	ARS1-10-00654-021	GAM-A-020	AM-241	0.012785	0.085553	0.085556	0.146	0.073	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-05	TLS-SS-IA2-15 (0.2-0.7)03241C	ARS1-10-00654-016	GAM-A-020	AM-241	-0.00871	0.39313	0.39313	0.175	0.0875	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-16	TLS-SS-IA2-16 (0.0-0.5)03241C	ARS1-10-00654-027	GAM-A-020	AM-241	0.043794	0.095943	0.09597	0.162	0.081	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-22	TLS-SB-IA2-19 (0.5-1.5)032510	ARS1-10-00660-002	GAM-A-020	AM-241	0.030668	0.085707	0.085722	0.145	0.0725	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-23	TLS-SB-IA2-19 (2.3-3.4)032510	ARS1-10-00660-003	GAM-A-020	AM-241	-0.0507	0.1645	0.16453	0.195	0.0975	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-21	TLS-SS-IA2-19 (0.0-0.5)03251C	ARS1-10-00660-001	GAM-A-020	AM-241	-0.04274	0.1087	0.10873	0.183	0.0915	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-08	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	GAM-A-020	BE-7	-0.02681	5.4073	5.4073	0.634	0.317	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-11	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	GAM-A-020	RA-226	1.743	1.1646	1.1679	1.56	0.78	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-12	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	GAM-A-020	RA-226	2.1584	1.2606	1.2653	1.54	0.77	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-13	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	GAM-A-020	RA-226	3.4447	1.8156	1.8233	2.24	1.12	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-14	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	GAM-A-020	RA-226	3.0263	1.2021	1.2112	1.62	0.81	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-15	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	GAM-A-020	RA-226	3.0888	1.3849	1.3935	1.84	0.92	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-06	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	GAM-A-020	RA-226	2.5082	1.116	1.1231	1.77	0.885	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-07	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	GAM-A-020	RA-226	2.6289	1.6426	1.6479	2.08	1.04	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-08	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	GAM-A-020	RA-226	2.9761	1.3537	1.3615	1.7	0.85	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-09	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	GAM-A-020	RA-226	2.5463	1.1096	1.1166	1.39	0.695	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-17	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	GAM-A-020	RA-226	1.3833	1.0505	1.0527	1.77	0.885	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-18	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	GAM-A-020	RA-226	2.1706	1.1216	1.1266	1.41	0.705	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-19	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	GAM-A-020	RA-226	2.337	1.1152	1.121	1.46	0.73	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-20	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	GAM-A-020	RA-226	2.1152	1.0458	1.0512	1.47	0.735	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-04	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	GAM-A-020	RA-226	17.924	1.7604	1.9662	1.5	0.75	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-10	TLS-SS-IA2-14 (1.2-1.7)03241C	ARS1-10-00654-021	GAM-A-020	RA-226	1.8777	1.1945	1.198	1.59	0.795	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-05	TLS-SS-IA2-15 (0.2-0.7)03241C	ARS1-10-00654-016	GAM-A-020	RA-226	2.2149	1.1774	1.1824	1.98	0.99	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-16	TLS-SS-IA2-16 (0.0-0.5)03241C	ARS1-10-00654-027	GAM-A-020	RA-226	4.5761	1.4655	1.4834	1.71	0.855	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-22	TLS-SB-IA2-19 (0.5-1.5)032510	ARS1-10-00660-002	GAM-A-020	RA-226	2.2358	0.98899	0.995	1.39	0.695	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-23	TLS-SB-IA2-19 (2.3-3.4)032510	ARS1-10-00660-003	GAM-A-020	RA-226	2.3206	1.3477	1.3527	1.76	0.88	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-21	TLS-SS-IA2-19 (0.0-0.5)03251C	ARS1-10-00660-001	GAM-A-020	RA-226	2.8114	1.6543	1.66	2.05	1.025	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-11	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	GAM-A-020	RA-228	1.0016	0.17822	0.18824	0.21	0.105	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-12	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	GAM-A-020	RA-228	1.0335	0.18784	0.19833	0.185	0.0925	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-13	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	GAM-A-020	RA-228	1.2211	0.23961	0.25093	0.234	0.117	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-14	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	GAM-A-020	RA-228	1.3813	0.27347	0.28617	0.229	0.1145	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-15	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	GAM-A-020	RA-228	1.3002	0.2798	0.29066	0.203	0.1015	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-06	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	GAM-A-020	RA-228	1.1573	0.19691	0.20942	0.213	0.1065	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-07	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	GAM-A-020	RA-228	1.2633	0.24392	0.25561	0.298	0.149	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-08	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	GAM-A-020	RA-228	1.1878	0.27871	0.28798	0.244	0.122	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-09	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	GAM-A-020	RA-228	0.73199	0.18869	0.19391	0.161	0.0805	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-17	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	GAM-A-020	RA-228	0.97804	0.19142	0.2005	0.168	0.084	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-18	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	GAM-A-020	RA-228	0.89836	0.17071	0.1793	0.174	0.087	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-19	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	GAM-A-020	RA-228	1.0018	0.25003	0.25739	0.198	0.099	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-20	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	GAM-A-020	RA-228	0.85223	0.1676	0.17535	0.209	0.1045	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-04	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	GAM-A-020	RA-228	0.84473	0.1969	0.20354	0.284	0.142	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-10	TLS-SS-IA2-14 (1.2-1.7)03241C	ARS1-10-00654-021	GAM-A-020	RA-228	0.76394	0.16397	0.17047	0.247	0.1235	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-05	TLS-SS-IA2-15 (0.2-0.7)03241C	ARS1-10-00654-016	GAM-A-020	RA-228	1.2849	0.24559	0.2578	0.248	0.124	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-16	TLS-SS-IA2-16 (0.0-0.5)03241C	ARS1-10-00654-027	GAM-A-020	RA-228	0.92194	0.23794	0.24462	0.359	0.1795	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-22	TLS-SB-IA2-19 (0.5-1.5)032510	ARS1-10-00660-002	GAM-A-020	RA-228	0.87342	0.20963	0.2163	0.176	0.088	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-23	TLS-SB-IA2-19 (2.3-3.4)032510	ARS1-10-00660-003	GAM-A-020	RA-228	0.91766	0.20132	0.2091	0.314	0.157	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-21	TLS-SS-IA2-19 (0.0-0.5)03251C	ARS1-10-00660-001	GAM-A-020	RA-228	1.0498	0.2377	0.24618	0.382	0.191	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-11	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	GAM-A-020	U-234	1.8426	0.77186	0.784	1.45	0.725	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-12	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	GAM-A-020	U-234	0.47845	0.84686	0.84758	1.47	0.735	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-13	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	GAM-A-020	U-234	2.9567	0.98766	1.0112	1.83	0.915	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-14	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	GAM-A-020	U-234	1.6326	0.9988	1.006	1.81	0.905	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-15	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	GAM-A-020	U-234	1.7665	0.783	0.79402	1.9	0.95	pCi	g	ARS1-B10-02049		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02049-06	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	GAM-A-020	U-234	1.5241	0.79414	0.80198	1.49	0.745	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-07	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	GAM-A-020	U-234	2.2463	0.95717	0.97172	2.01	1.005	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-08	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	GAM-A-020	U-234	1.6637	1.1376	1.1444	1.49	0.745	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-09	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	GAM-A-020	U-234	1.6355	0.7487	0.75826	1.26	0.63	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-17	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	GAM-A-020	U-234	1.6736	0.75133	0.7618	1.3	0.65	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-18	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	GAM-A-020	U-234	0.65712	0.73963	0.7412	1.12	0.56	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-19	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	GAM-A-020	U-234	2.1744	1.2279	1.2382	1.58	0.79	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-20	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	GAM-A-020	U-234	1.2853	1.1554	1.1594	1.54	0.77	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-04	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	GAM-A-020	U-234	16.441	1.3449	1.8068	1.89	0.945	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-10	TLS-SS-IA2-14 (1.2-1.7)03241C	ARS1-10-00654-021	GAM-A-020	U-234	1.7723	0.73547	0.74688	1.38	0.69	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-05	TLS-SS-IA2-15 (0.2-0.7)03241C	ARS1-10-00654-016	GAM-A-020	U-234	0.55209	1.4695	1.4701	2.06	1.03	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-16	TLS-SS-IA2-16 (0.0-0.5)03241C	ARS1-10-00654-027	GAM-A-020	U-234	1.2515	1.0373	1.0414	1.57	0.785	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-22	TLS-SB-IA2-19 (0.5-1.5)03251C	ARS1-10-00660-002	GAM-A-020	U-234	1.4075	0.92966	0.93538	1.62	0.81	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-23	TLS-SB-IA2-19 (2.3-3.4)03251C	ARS1-10-00660-003	GAM-A-020	U-234	2.1293	0.79699	0.81217	1.34	0.67	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-21	TLS-SS-IA2-19 (0.0-0.5)03251C	ARS1-10-00660-001	GAM-A-020	U-234	2.0739	0.94563	0.9584	1.64	0.82	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-11	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	GAM-A-020	U-235	0.11818	0.26206	0.26218	0.448	0.224	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-12	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	GAM-A-020	U-235	0.12092	0.25928	0.25941	0.438	0.219	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-13	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	GAM-A-020	U-235	0.16259	0.33948	0.33966	0.584	0.292	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-14	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	GAM-A-020	U-235	-0.03378	0.73687	0.73687	0.55	0.275	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-15	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	GAM-A-020	U-235	0.071005	0.32239	0.32243	0.556	0.278	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-06	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	GAM-A-020	U-235	0.21806	0.28818	0.28857	0.479	0.2395	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-07	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	GAM-A-020	U-235	0.09163	0.36454	0.3646	0.627	0.3135	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-08	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	GAM-A-020	U-235	0.11732	0.30353	0.30363	0.517	0.2585	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-09	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	GAM-A-020	U-235	0.22038	0.22873	0.22922	0.381	0.1905	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-17	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	GAM-A-020	U-235	0.28027	0.26914	0.26981	0.442	0.221	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-18	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	GAM-A-020	U-235	0.22866	0.20398	0.20457	0.337	0.1685	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-19	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	GAM-A-020	U-235	0.099315	0.24391	0.244	0.42	0.21	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-20	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	GAM-A-020	U-235	0.070296	0.26519	0.26523	0.457	0.2285	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-04	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	GAM-A-020	U-235	1.5064	0.44487	0.45649	0.48	0.24	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-10	TLS-SS-IA2-14 (1.2-1.7)03241C	ARS1-10-00654-021	GAM-A-020	U-235	0.069933	0.24897	0.24901	0.432	0.216	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-05	TLS-SS-IA2-15 (0.2-0.7)03241C	ARS1-10-00654-016	GAM-A-020	U-235	0.088612	0.32821	0.32827	0.567	0.2835	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-16	TLS-SS-IA2-16 (0.0-0.5)03241C	ARS1-10-00654-027	GAM-A-020	U-235	-0.04366	33.417	33.417	0.623	0.3115	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-22	TLS-SB-IA2-19 (0.5-1.5)03251C	ARS1-10-00660-002	GAM-A-020	U-235	-0.09111	4.3611	4.3611	0.45	0.225	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-23	TLS-SB-IA2-19 (2.3-3.4)03251C	ARS1-10-00660-003	GAM-A-020	U-235	0.058228	0.33893	0.33895	0.581	0.2905	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-21	TLS-SS-IA2-19 (0.0-0.5)03251C	ARS1-10-00660-001	GAM-A-020	U-235	0.014275	0.30423	0.30423	0.537	0.2685	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-11	TLS-SB-IA2-14 (2.0-3.0)032410	ARS1-10-00654-022	GAM-A-020	U-238	1.8426	0.77186	0.784	1.45	0.725	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-12	TLS-SB-IA2-14 (3.0-4.0)032410	ARS1-10-00654-023	GAM-A-020	U-238	0.47845	0.84686	0.84758	1.47	0.735	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-13	TLS-SB-IA2-14 (6.6-6.8)032410	ARS1-10-00654-024	GAM-A-020	U-238	2.9567	0.98766	1.0112	1.83	0.915	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-14	TLS-SB-IA2-14 (6.8-7.8)032410	ARS1-10-00654-025	GAM-A-020	U-238	1.6326	0.9988	1.006	1.81	0.905	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-15	TLS-SB-IA2-14 (8.9-9.9)032410	ARS1-10-00654-026	GAM-A-020	U-238	1.7665	0.783	0.79402	1.9	0.95	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-06	TLS-SB-IA2-15 (1.0-2.0)032410	ARS1-10-00654-017	GAM-A-020	U-238	1.5241	0.79414	0.80198	1.49	0.745	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-07	TLS-SB-IA2-15 (1.0-2.0)032410D	ARS1-10-00654-018	GAM-A-020	U-238	2.2463	0.95717	0.97172	2.01	1.005	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-08	TLS-SB-IA2-15 (4.2-5.2)032410	ARS1-10-00654-019	GAM-A-020	U-238	1.6637	1.1376	1.1444	1.49	0.745	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-09	TLS-SB-IA2-15 (6.2-7.2)032410	ARS1-10-00654-020	GAM-A-020	U-238	1.6355	0.7487	0.75826	1.26	0.63	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-17	TLS-SB-IA2-16 (1.5-2.5)032410	ARS1-10-00654-028	GAM-A-020	U-238	1.6736	0.75133	0.7618	1.3	0.65	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-18	TLS-SB-IA2-16 (3.0-4.0)032410	ARS1-10-00654-029	GAM-A-020	U-238	0.65712	0.73963	0.7412	1.12	0.56	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-19	TLS-SB-IA2-16 (4.9-5.9)032410	ARS1-10-00654-030	GAM-A-020	U-238	2.1744	1.2279	1.2382	1.58	0.79	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-20	TLS-SB-IA2-16 (7.0-8.0)032410	ARS1-10-00654-031	GAM-A-020	U-238	1.2853	1.1554	1.1594	1.54	0.77	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-04	TLS-SB-IA2-2 (15.7-16.7)032410	ARS1-10-00654-015	GAM-A-020	U-238	16.441	1.3449	1.8068	1.89	0.945	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-10	TLS-SS-IA2-14 (1.2-1.7)03241C	ARS1-10-00654-021	GAM-A-020	U-238	1.7723	0.73547	0.74688	1.38	0.69	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-05	TLS-SS-IA2-15 (0.2-0.7)03241C	ARS1-10-00654-016	GAM-A-020	U-238	0.55209	1.4695	1.4701	2.06	1.03	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-16	TLS-SS-IA2-16 (0.0-0.5)03241C	ARS1-10-00654-027	GAM-A-020	U-238	1.2515	1.0373	1.0414	1.57	0.785	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-22	TLS-SB-IA2-19 (0.5-1.5)03251C	ARS1-10-00660-002	GAM-A-020	U-238	1.4075	0.92966	0.93538	1.62	0.81	pCi	g	ARS1-B10-02049		1	U	U				
ARS1-B10-02049-23	TLS-SB-IA2-19 (2.3-3.4)03251C	ARS1-10-00660-003	GAM-A-020	U-238	2.1293	0.79699	0.81217	1.34	0.67	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02049-21	TLS-SS-IA2-19 (0.0-0.5)03251C	ARS1-10-00660-001	GAM-A-020	U-238	2.0739	0.94563	0.9584	1.64	0.82	pCi	g	ARS1-B10-02049		1						
ARS1-B10-02058-16	TLS-SB-IA2-19 (3.4-4.0)03251C	ARS1-10-00660-004	GAM-A-020	AM-241	0.046916	0.099885	0.099917	0.167	0.0835	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-17	TLS-SB-IA2-19 (4.7-5.7)03251C	ARS1-10-00660-005	GAM-A-020	AM-241	0.094685	0.10045	0.10057	0.165	0.0825	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-19	TLS-SB-IA2-18 (0.5-1.5)03251C	ARS1-10-00660-007	GAM-A-020	AM-241	0.041482	0.11517	0.11519	0.194	0.097	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-20	TLS-SB-IA2-18 (2.5-4.0)03251C	ARS1-10-00660-008	GAM-A-020	AM-241	0.014009	0.08474	0.084743	0.145	0.0725	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-18	TLS-SS-IA2-18 (0.0-0.5)03251C	ARS1-10-00660-006	GAM-A-020	AM-241	-0.01929	0.1498	0.1498	0.183	0.0915	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-16	TLS-SB-IA2-19 (3.4-4.0)03251C	ARS1-10-00660-004	GAM-A-020	RA-226	2.1431	1.3056	1.3098	1.8	0.9	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-17	TLS-SB-IA2-19 (4.7-5.7)03251C	ARS1-10-00660-005	GAM-A-020	RA-226	3.3405	1.5905	1.5989	1.86	0.93	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-19	TLS-SB-IA2-18 (0.5-1.5)03251C	ARS1-10-00660-007	GAM-A-020	RA-226	3.1102	1.5196	1.5272	2.04	1.02	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-20	TLS-SB-IA2-18 (2.5-4.0)03251C	ARS1-10-00660-008	GAM-A-020	RA-226	3.0246	1.4452	1.4532	1.68	0.84	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-18	TLS-SS-IA2-18 (0.0-0.5)03251C	ARS1-10-00660-006	GAM-A-020	RA-226	2.9311	1.3375	1.3456	1.98	0.99	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-16	TLS-SB-IA2-19 (3.4-4.0)03251C	ARS1-10-00660-004	GAM-A-020	RA-228	1.4397	0.24126	0.25676	0.206	0.103	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-17	TLS-SB-IA2-19 (4.7-5.7)03251C	ARS1-10-00660-005	GAM-A-020	RA-228	1.4677	0.20137	0.22039	0.198	0.099	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-19	TLS-SB-IA2-18 (0.5-1.5)03251C	ARS1-10-00660-007	GAM-A-020	RA-228	1.4719	0.30228	0.31534	0.238	0.119	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-20	TLS-SB-IA2-18 (2.5-4.0)03251C	ARS1-10-00660-008	GAM-A-020	RA-228	1.1705	0.19681	0.2096	0.248	0.124	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-18	TLS-SS-IA2-18 (0.0-0.5)03251C	ARS1-10-00660-006	GAM-A-020	RA-228	1.4338	0.305	0.3171	0.375	0.1875	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-16	TLS-SB-IA2-19 (3.4-4.0)03251C	ARS1-10-00660-004	GAM-A-020	U-234	1.8395	1.1595	1.1677	1.53	0.765	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-17	TLS-SB-IA2-19 (4.7-5.7)03251C	ARS1-10-00660-005	GAM-A-020	U-234	2.3494	1.1221	1.1353	1.52	0.76	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-19	TLS-SB-IA2-18 (0.5-1.5)03251C	ARS1-10-00660-007	GAM-A-020	U-234	2.5774	1.0733	1.0898	1.95	0.975	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-20	TLS-SB-IA2-18 (2.5-4.0)03251C	ARS1-10-00660-008	GAM-A-020	U-234	1.5382	0.67792	0.68726	1.4	0.7	pCi	g	ARS1-B10-02058		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02058-18	TLS-SS-IA2-18 (0.0-0.5)03251C	ARS1-10-00660-006	GAM-A-020	U-234	3.0261	1.0533	1.0772	2.1	1.05	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-16	TLS-SB-IA2-19 (3.4-4.0)03251C	ARS1-10-00660-004	GAM-A-020	U-235	-0.07398	4.8629	4.8629	0.714	0.357	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-17	TLS-SB-IA2-19 (4.7-5.7)03251C	ARS1-10-00660-005	GAM-A-020	U-235	-0.0972	5.7581	5.7581	0.565	0.2825	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-19	TLS-SB-IA2-18 (0.5-1.5)03251C	ARS1-10-00660-007	GAM-A-020	U-235	0.1519	0.33237	0.33253	0.571	0.2855	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-20	TLS-SB-IA2-18 (2.5-4.0)03251C	ARS1-10-00660-008	GAM-A-020	U-235	-0.03137	9.9507	9.9507	0.544	0.272	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-18	TLS-SS-IA2-18 (0.0-0.5)03251C	ARS1-10-00660-006	GAM-A-020	U-235	0.22171	0.36132	0.36163	0.614	0.307	pCi	g	ARS1-B10-02058		1	U	U				
ARS1-B10-02058-16	TLS-SB-IA2-19 (3.4-4.0)03251C	ARS1-10-00660-004	GAM-A-020	U-238	1.8395	1.1595	1.1677	1.53	0.765	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-17	TLS-SB-IA2-19 (4.7-5.7)03251C	ARS1-10-00660-005	GAM-A-020	U-238	2.3494	1.1221	1.1353	1.52	0.76	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-19	TLS-SB-IA2-18 (0.5-1.5)03251C	ARS1-10-00660-007	GAM-A-020	U-238	2.5774	1.0733	1.0898	1.95	0.975	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-20	TLS-SB-IA2-18 (2.5-4.0)03251C	ARS1-10-00660-008	GAM-A-020	U-238	1.5382	0.67792	0.68726	1.4	0.7	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02058-18	TLS-SS-IA2-18 (0.0-0.5)03251C	ARS1-10-00660-006	GAM-A-020	U-238	3.0261	1.0533	1.0772	2.1	1.05	pCi	g	ARS1-B10-02058		1						
ARS1-B10-02070-13	TLS-SB-IA2-18 (5.6-7.0)03251C	ARS1-10-00660-010	GAM-A-020	AM-241	0.034388	0.098482	0.098498	0.166	0.083	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-20	TLS-SB-IA2-20 (1.0-2.0)03251C	ARS1-10-00660-017	GAM-A-020	AM-241	0.004481	0.071562	0.071562	0.124	0.062	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-12	TLS-SB-IA2-18 (4.6-5.6)03251C	ARS1-10-00660-009	GAM-A-020	AM-241	0	0.097693	0.097694	0.167	0.0835	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-15	TLS-SB-IA2-21 (0.5-1.5)03251C	ARS1-10-00660-012	GAM-A-020	AM-241	-0.01054	0.17723	0.17723	0.176	0.088	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-16	TLS-SB-IA2-21 (1.5-2.5)03251C	ARS1-10-00660-013	GAM-A-020	AM-241	-0.03802	0.11699	0.11701	0.134	0.067	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-17	TLS-SB-IA2-21 (2.6-3.6)03251C	ARS1-10-00660-014	GAM-A-020	AM-241	-0.02981	0.076231	0.076248	0.129	0.0645	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-18	TLS-SB-IA2-21 (5.7-7.0)03251C	ARS1-10-00660-015	GAM-A-020	AM-241	0.069256	0.10591	0.10597	0.176	0.088	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-14	TLS-SS-IA2-21 (0.0-0.5)03251C	ARS1-10-00660-011	GAM-A-020	AM-241	-0.00624	0.24945	0.24945	0.18	0.09	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-13	TLS-SB-IA2-18 (5.6-7.0)03251C	ARS1-10-00660-010	GAM-A-020	RA-226	3.0363	1.4488	1.4564	1.73	0.865	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-20	TLS-SB-IA2-20 (1.0-2.0)03251C	ARS1-10-00660-017	GAM-A-020	RA-226	1.7416	1.1626	1.1657	1.54	0.77	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-12	TLS-SB-IA2-18 (4.6-5.6)03251C	ARS1-10-00660-009	GAM-A-020	RA-226	1.9112	1.1898	1.1935	1.69	0.845	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-15	TLS-SB-IA2-21 (0.5-1.5)03251C	ARS1-10-00660-012	GAM-A-020	RA-226	2.307	1.4745	1.479	1.95	0.975	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-16	TLS-SB-IA2-21 (1.5-2.5)03251C	ARS1-10-00660-013	GAM-A-020	RA-226	2.2788	0.99275	0.9993	1.57	0.785	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-17	TLS-SB-IA2-21 (2.6-3.6)03251C	ARS1-10-00660-014	GAM-A-020	RA-226	2.9314	1.3496	1.3572	1.72	0.86	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-18	TLS-SB-IA2-21 (5.7-7.0)03251C	ARS1-10-00660-015	GAM-A-020	RA-226	2.3671	1.4767	1.4812	1.95	0.975	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-14	TLS-SS-IA2-21 (0.0-0.5)03251C	ARS1-10-00660-011	GAM-A-020	RA-226	4.3042	1.9423	1.9537	2.34	1.17	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-12	TLS-SB-IA2-18 (4.6-5.6)03251C	ARS1-10-00660-009	GAM-A-020	RA-228	1.4123	0.30221	0.31426	0.237	0.1185	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-13	TLS-SB-IA2-18 (5.6-7.0)03251C	ARS1-10-00660-010	GAM-A-020	RA-228	0.55979	0.22463	0.22721	0.33	0.165	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-20	TLS-SB-IA2-20 (1.0-2.0)03251C	ARS1-10-00660-017	GAM-A-020	RA-228	1.2037	0.20132	0.21431	0.19	0.095	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-15	TLS-SB-IA2-21 (0.5-1.5)03251C	ARS1-10-00660-012	GAM-A-020	RA-228	1.0759	0.19878	0.20917	0.238	0.119	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-16	TLS-SB-IA2-21 (1.5-2.5)03251C	ARS1-10-00660-013	GAM-A-020	RA-228	0.96465	0.20687	0.21524	0.186	0.093	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-17	TLS-SB-IA2-21 (2.6-3.6)03251C	ARS1-10-00660-014	GAM-A-020	RA-228	1.2074	0.2477	0.25842	0.25	0.125	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-18	TLS-SB-IA2-21 (5.7-7.0)03251C	ARS1-10-00660-015	GAM-A-020	RA-228	1.3903	0.24225	0.25668	0.234	0.117	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-14	TLS-SS-IA2-21 (0.0-0.5)03251C	ARS1-10-00660-011	GAM-A-020	RA-228	1.1063	0.26678	0.27519	0.198	0.099	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-12	TLS-SB-IA2-18 (4.6-5.6)03251C	ARS1-10-00660-009	GAM-A-020	U-234	2.2537	0.91341	0.92899	1.48	0.74	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-13	TLS-SB-IA2-18 (5.6-7.0)03251C	ARS1-10-00660-010	GAM-A-020	U-234	1.7843	0.78175	0.79264	1.43	0.715	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-20	TLS-SB-IA2-20 (1.0-2.0)03251C	ARS1-10-00660-017	GAM-A-020	U-234	1.519	0.70774	0.71647	1.35	0.675	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-15	TLS-SB-IA2-21 (0.5-1.5)03251C	ARS1-10-00660-012	GAM-A-020	U-234	1.5275	0.89985	0.90703	1.79	0.895	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-16	TLS-SB-IA2-21 (1.5-2.5)03251C	ARS1-10-00660-013	GAM-A-020	U-234	0.41183	0.85959	0.86012	1.49	0.745	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-17	TLS-SB-IA2-21 (2.6-3.6)03251C	ARS1-10-00660-014	GAM-A-020	U-234	0.74645	1.0465	1.048	1.51	0.755	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-18	TLS-SB-IA2-21 (5.7-7.0)03251C	ARS1-10-00660-015	GAM-A-020	U-234	2.1105	1.0175	1.0292	1.88	0.94	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-14	TLS-SS-IA2-21 (0.0-0.5)03251C	ARS1-10-00660-011	GAM-A-020	U-234	1.3206	1.4674	1.4706	2.14	1.07	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-12	TLS-SB-IA2-18 (4.6-5.6)03251C	ARS1-10-00660-009	GAM-A-020	U-235	0.037656	0.32509	0.3251	0.562	0.281	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-13	TLS-SB-IA2-18 (5.6-7.0)03251C	ARS1-10-00660-010	GAM-A-020	U-235	-0.09066	6.7337	6.7337	0.51	0.255	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-20	TLS-SB-IA2-20 (1.0-2.0)03251C	ARS1-10-00660-017	GAM-A-020	U-235	0.11601	0.27155	0.27166	0.466	0.233	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-15	TLS-SB-IA2-21 (0.5-1.5)03251C	ARS1-10-00660-012	GAM-A-020	U-235	0.20664	0.32202	0.32233	0.545	0.2725	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-16	TLS-SB-IA2-21 (1.5-2.5)03251C	ARS1-10-00660-013	GAM-A-020	U-235	0.10384	0.2704	0.27049	0.459	0.2295	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-17	TLS-SB-IA2-21 (2.6-3.6)03251C	ARS1-10-00660-014	GAM-A-020	U-235	0.17346	0.3	0.30023	0.506	0.253	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-18	TLS-SB-IA2-21 (5.7-7.0)03251C	ARS1-10-00660-015	GAM-A-020	U-235	-0.09811	3.9245	3.9245	0.603	0.3015	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-14	TLS-SS-IA2-21 (0.0-0.5)03251C	ARS1-10-00660-011	GAM-A-020	U-235	0.27042	0.32318	0.3237	0.546	0.273	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-12	TLS-SB-IA2-18 (4.6-5.6)03251C	ARS1-10-00660-009	GAM-A-020	U-238	2.2537	0.91341	0.92899	1.48	0.74	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-13	TLS-SB-IA2-18 (5.6-7.0)03251C	ARS1-10-00660-010	GAM-A-020	U-238	1.7843	0.78175	0.79264	1.43	0.715	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-20	TLS-SB-IA2-20 (1.0-2.0)03251C	ARS1-10-00660-017	GAM-A-020	U-238	1.519	0.70774	0.71647	1.35	0.675	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-15	TLS-SB-IA2-21 (0.5-1.5)03251C	ARS1-10-00660-012	GAM-A-020	U-238	1.5275	0.89985	0.90703	1.79	0.895	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-16	TLS-SB-IA2-21 (1.5-2.5)03251C	ARS1-10-00660-013	GAM-A-020	U-238	0.41183	0.85959	0.86012	1.49	0.745	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-17	TLS-SB-IA2-21 (2.6-3.6)03251C	ARS1-10-00660-014	GAM-A-020	U-238	0.74645	1.0465	1.048	1.51	0.755	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02070-18	TLS-SB-IA2-21 (5.7-7.0)03251C	ARS1-10-00660-015	GAM-A-020	U-238	2.1105	1.0175	1.0292	1.88	0.94	pCi	g	ARS1-B10-02070		1						
ARS1-B10-02070-14	TLS-SS-IA2-21 (0.0-0.5)03251C	ARS1-10-00660-011	GAM-A-020	U-238	1.3206	1.4674	1.4706	2.14	1.07	pCi	g	ARS1-B10-02070		1	U	U				
ARS1-B10-02071-19	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	GAM-A-020	AM-241	-0.0009	0.15834	0.15834	0.198	0.099	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-20	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	GAM-A-020	AM-241	0.046996	0.080157	0.080195	0.134	0.067	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-13	TLS-SB-IA2-17 (1.0-2.0)03251C	ARS1-10-00660-026	GAM-A-020	AM-241	0.011346	0.13323	0.13323	0.228	0.114	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-14	TLS-SB-IA2-17 (2.8-3.8)03251C	ARS1-10-00660-027	GAM-A-020	AM-241	-0.00393	2.3438	2.3438	0.138	0.069	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-15	TLS-SB-IA2-17 (6.0-7.0)03251C	ARS1-10-00660-028	GAM-A-020	AM-241	-0.00444	0.33639	0.33639	0.148	0.074	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-16	TLS-SB-IA2-17 (6.0-7.0)03251OD	ARS1-10-00660-029	GAM-A-020	AM-241	-0.00822	0.1706	0.1706	0.156	0.078	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-17	TLS-SB-IA2-17 (7.0-8.0)03251C	ARS1-10-00660-030	GAM-A-020	AM-241	-0.02285	0.11538	0.11539	0.141	0.0705	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-05	TLS-SB-IA2-20 (3.0-4.0)03251C	ARS1-10-00660-018	GAM-A-020	AM-241	-0.0197	0.16117	0.16118	0.133	0.0665	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-06	TLS-SB-IA2-20 (6.0-7.0)03251C	ARS1-10-00660-019	GAM-A-020	AM-241	-0.01229	0.080908	0.080911	0.138	0.069	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-08	TLS-SB-IA2-22 (1.7-2.7)03251C	ARS1-10-00660-021	GAM-A-020	AM-241	0.016231	0.11023	0.11023	0.187	0.0935	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-10	TLS-SB-IA2-22 (5.0-6.0)03251C	ARS1-10-00660-023	GAM-A-020	AM-241	-0.02978	0.11783	0.11784	0.121	0.0605	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-11	TLS-SB-IA2-22 (5.0-6.0)03251OD	ARS1-10-00660-024	GAM-A-020	AM-241	0.008565	0.082867	0.082868	0.141	0.0705	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-12	TLS-SS-IA2-17 (0.2-0.7)03251C	ARS1-10-00660-025	GAM-A-020	AM-241	0.008971	0.11938	0.11938	0.206	0.103	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-07	TLS-SS-IA2-22 (0.0-0.5)03251C	ARS1-10-00660-020	GAM-A-020	AM-241	0.019737	0.10404	0.10405	0.177	0.0885	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-19	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	GAM-A-020	RA-226	3.3985	1.5074	1.5165	2.08	1.04	pCi	g	ARS1-B10-02071		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02071-20	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	GAM-A-020	RA-226	2.2992	1.1887	1.1943	1.45	0.725	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-13	TLS-SB-IA2-17 (1.0-2.0)03251C	ARS1-10-00660-026	GAM-A-020	RA-226	4.3263	1.9804	1.9923	2.62	1.31	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-14	TLS-SB-IA2-17 (2.8-3.8)03251C	ARS1-10-00660-027	GAM-A-020	RA-226	1.4591	1.2194	1.2215	1.57	0.785	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-15	TLS-SB-IA2-17 (6.0-7.0)03251C	ARS1-10-00660-028	GAM-A-020	RA-226	2.2397	1.1334	1.139	1.44	0.72	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-16	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	GAM-A-020	RA-226	0.72797	1.1369	1.1375	2.03	1.015	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-17	TLS-SB-IA2-17 (7.0-8.0)03251C	ARS1-10-00660-030	GAM-A-020	RA-226	1.8638	1.334	1.3371	1.67	0.835	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-05	TLS-SB-IA2-20 (3.0-4.0)03251C	ARS1-10-00660-018	GAM-A-020	RA-226	1.1569	0.9647	0.96644	1.33	0.665	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-06	TLS-SB-IA2-20 (6.0-7.0)03251C	ARS1-10-00660-019	GAM-A-020	RA-226	1.5946	1.0786	1.0814	1.5	0.75	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-08	TLS-SB-IA2-22 (1.7-2.7)03251C	ARS1-10-00660-021	GAM-A-020	RA-226	3.193	1.5133	1.5217	1.95	0.975	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-10	TLS-SB-IA2-22 (5.0-6.0)03251C	ARS1-10-00660-023	GAM-A-020	RA-226	1.9258	1.1867	1.1906	1.5	0.75	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-11	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	GAM-A-020	RA-226	2.2143	1.1794	1.1843	1.44	0.72	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-12	TLS-SS-IA2-17 (0.2-0.7)03251C	ARS1-10-00660-025	GAM-A-020	RA-226	2.9468	1.3769	1.3848	1.96	0.98	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-07	TLS-SS-IA2-22 (0.0-0.5)03251C	ARS1-10-00660-020	GAM-A-020	RA-226	2.6074	1.4639	1.4695	1.83	0.915	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-19	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	GAM-A-020	RA-228	1.4576	0.26992	0.2842	0.311	0.1555	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-20	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	GAM-A-020	RA-228	0.92196	0.21695	0.22426	0.183	0.0915	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-13	TLS-SB-IA2-17 (1.0-2.0)03251C	ARS1-10-00660-026	GAM-A-020	RA-228	1.3102	0.29505	0.30551	0.469	0.2345	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-14	TLS-SB-IA2-17 (2.8-3.8)03251C	ARS1-10-00660-027	GAM-A-020	RA-228	0.96725	0.17226	0.18209	0.162	0.081	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-15	TLS-SB-IA2-17 (6.0-7.0)03251C	ARS1-10-00660-028	GAM-A-020	RA-228	1.0303	0.23045	0.23903	0.17	0.085	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-16	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	GAM-A-020	RA-228	1.1319	0.23334	0.24318	0.19	0.095	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-17	TLS-SB-IA2-17 (7.0-8.0)03251C	ARS1-10-00660-030	GAM-A-020	RA-228	0.97572	0.19789	0.20666	0.181	0.0905	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-05	TLS-SB-IA2-20 (3.0-4.0)03251C	ARS1-10-00660-018	GAM-A-020	RA-228	0.79845	0.19262	0.1988	0.198	0.099	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-06	TLS-SB-IA2-20 (6.0-7.0)03251C	ARS1-10-00660-019	GAM-A-020	RA-228	0.96651	0.21318	0.22119	0.182	0.091	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-08	TLS-SB-IA2-22 (1.7-2.7)03251C	ARS1-10-00660-021	GAM-A-020	RA-228	1.2567	0.20817	0.22163	0.263	0.1315	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-10	TLS-SB-IA2-22 (5.0-6.0)03251C	ARS1-10-00660-023	GAM-A-020	RA-228	1.0507	0.18584	0.19679	0.169	0.0845	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-11	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	GAM-A-020	RA-228	1.0592	0.21942	0.22874	0.176	0.088	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-12	TLS-SS-IA2-17 (0.2-0.7)03251C	ARS1-10-00660-025	GAM-A-020	RA-228	1.7206	0.29639	0.31477	0.26	0.13	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-07	TLS-SS-IA2-22 (0.0-0.5)03251C	ARS1-10-00660-020	GAM-A-020	RA-228	1.0349	0.21203	0.22123	0.241	0.1205	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-19	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	GAM-A-020	U-234	2.0944	1.3389	1.3477	2	1	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-20	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	GAM-A-020	U-234	1.5493	0.7175	0.72646	1.42	0.71	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-13	TLS-SB-IA2-17 (1.0-2.0)03251C	ARS1-10-00660-026	GAM-A-020	U-234	2.9175	1.4053	1.422	2.4	1.2	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-14	TLS-SB-IA2-17 (2.8-3.8)03251C	ARS1-10-00660-027	GAM-A-020	U-234	1.6531	0.6515	0.6627	1.33	0.665	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-15	TLS-SB-IA2-17 (6.0-7.0)03251C	ARS1-10-00660-028	GAM-A-020	U-234	1.2388	0.73298	0.73859	1.13	0.565	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-16	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	GAM-A-020	U-234	3.0758	0.84573	0.8763	1.74	0.87	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-17	TLS-SB-IA2-17 (7.0-8.0)03251C	ARS1-10-00660-030	GAM-A-020	U-234	0.71859	1.0457	1.047	1.46	0.73	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-05	TLS-SB-IA2-20 (3.0-4.0)03251C	ARS1-10-00660-018	GAM-A-020	U-234	0.44465	0.72086	0.7216	1.1	0.55	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-06	TLS-SB-IA2-20 (6.0-7.0)03251C	ARS1-10-00660-019	GAM-A-020	U-234	1.0771	0.73235	0.73682	1.31	0.655	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-08	TLS-SB-IA2-22 (1.7-2.7)03251C	ARS1-10-00660-021	GAM-A-020	U-234	2.2815	1.4061	1.4164	1.88	0.94	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-10	TLS-SB-IA2-22 (5.0-6.0)03251C	ARS1-10-00660-023	GAM-A-020	U-234	1.2016	0.73769	0.74294	1.14	0.57	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-11	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	GAM-A-020	U-234	1.7593	0.72757	0.73894	1.25	0.625	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-12	TLS-SS-IA2-17 (0.2-0.7)03251C	ARS1-10-00660-025	GAM-A-020	U-234	2.0983	1.1	1.1107	2.03	1.015	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-07	TLS-SS-IA2-22 (0.0-0.5)03251C	ARS1-10-00660-020	GAM-A-020	U-234	1.9818	0.77294	0.78651	1.44	0.72	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-19	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	GAM-A-020	U-235	0.24834	0.31467	0.31512	0.532	0.266	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-20	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	GAM-A-020	U-235	0.018693	0.24744	0.24744	0.428	0.214	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-13	TLS-SB-IA2-17 (1.0-2.0)03251C	ARS1-10-00660-026	GAM-A-020	U-235	0.079393	0.39525	0.39529	0.692	0.346	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-14	TLS-SB-IA2-17 (2.8-3.8)03251C	ARS1-10-00660-027	GAM-A-020	U-235	0.029738	0.23784	0.23785	0.416	0.208	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-15	TLS-SB-IA2-17 (6.0-7.0)03251C	ARS1-10-00660-028	GAM-A-020	U-235	-0.03181	1.2723	1.2723	0.488	0.244	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-16	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	GAM-A-020	U-235	0.062199	0.28753	0.28756	0.498	0.249	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-17	TLS-SB-IA2-17 (7.0-8.0)03251C	ARS1-10-00660-030	GAM-A-020	U-235	0.1116	0.24556	0.24568	0.419	0.2095	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-05	TLS-SB-IA2-20 (3.0-4.0)03251C	ARS1-10-00660-018	GAM-A-020	U-235	0.02128	0.18481	0.18481	0.324	0.162	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-06	TLS-SB-IA2-20 (6.0-7.0)03251C	ARS1-10-00660-019	GAM-A-020	U-235	-0.0407	2.0015	2.0015	0.45	0.225	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-08	TLS-SB-IA2-22 (1.7-2.7)03251C	ARS1-10-00660-021	GAM-A-020	U-235	0.071432	0.33972	0.33975	0.585	0.2925	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-10	TLS-SB-IA2-22 (5.0-6.0)03251C	ARS1-10-00660-023	GAM-A-020	U-235	0.067776	0.25283	0.25287	0.433	0.2165	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-11	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	GAM-A-020	U-235	0.062957	0.24092	0.24095	0.417	0.2085	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-12	TLS-SS-IA2-17 (0.2-0.7)03251C	ARS1-10-00660-025	GAM-A-020	U-235	0.054648	0.34304	0.34306	0.597	0.2985	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-07	TLS-SS-IA2-22 (0.0-0.5)03251C	ARS1-10-00660-020	GAM-A-020	U-235	0.052036	0.28236	0.28238	0.494	0.247	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-19	TLS-SB-IA3-D07 (2.6-3.6)03151C	ARS1-10-00580-002	GAM-A-020	U-238	2.0944	1.3389	1.3477	2	1	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-20	TLS-SB-IA3-D07 (5.2-6.2)03151C	ARS1-10-00580-003	GAM-A-020	U-238	1.5493	0.7175	0.72646	1.42	0.71	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-13	TLS-SB-IA2-17 (1.0-2.0)03251C	ARS1-10-00660-026	GAM-A-020	U-238	2.9175	1.4053	1.422	2.4	1.2	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-14	TLS-SB-IA2-17 (2.8-3.8)03251C	ARS1-10-00660-027	GAM-A-020	U-238	1.6531	0.6515	0.6627	1.33	0.665	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-15	TLS-SB-IA2-17 (6.0-7.0)03251C	ARS1-10-00660-028	GAM-A-020	U-238	1.2388	0.73298	0.73859	1.13	0.565	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-16	TLS-SB-IA2-17 (6.0-7.0)032510D	ARS1-10-00660-029	GAM-A-020	U-238	3.0758	0.84573	0.8763	1.74	0.87	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-17	TLS-SB-IA2-17 (7.0-8.0)03251C	ARS1-10-00660-030	GAM-A-020	U-238	0.71859	1.0457	1.047	1.46	0.73	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-05	TLS-SB-IA2-20 (3.0-4.0)03251C	ARS1-10-00660-018	GAM-A-020	U-238	0.44465	0.72086	0.7216	1.1	0.55	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-06	TLS-SB-IA2-20 (6.0-7.0)03251C	ARS1-10-00660-019	GAM-A-020	U-238	1.0771	0.73235	0.73682	1.31	0.655	pCi	g	ARS1-B10-02071		1	U	U				
ARS1-B10-02071-08	TLS-SB-IA2-22 (1.7-2.7)03251C	ARS1-10-00660-021	GAM-A-020	U-238	2.2815	1.4061	1.4164	1.88	0.94	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-10	TLS-SB-IA2-22 (5.0-6.0)03251C	ARS1-10-00660-023	GAM-A-020	U-238	1.2016	0.73769	0.74294	1.14	0.57	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-11	TLS-SB-IA2-22 (5.0-6.0)032510D	ARS1-10-00660-024	GAM-A-020	U-238	1.7593	0.72757	0.73894	1.25	0.625	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-12	TLS-SS-IA2-17 (0.2-0.7)03251C	ARS1-10-00660-025	GAM-A-020	U-238	2.0983	1.1	1.1107	2.03	1.015	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02071-07	TLS-SS-IA2-22 (0.0-0.5)03251C	ARS1-10-00660-020	GAM-A-020	U-238	1.9818	0.77294	0.78651	1.44	0.72	pCi	g	ARS1-B10-02071		1						
ARS1-B10-02073-13	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	GAM-A-020	AM-241	-0.00714	0.14482	0.14482	0.248	0.124	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-14	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	GAM-A-020	AM-241	-0.07409	0.19074	0.19078	0.276	0.138	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-15	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	GAM-A-020	AM-241	0.023511	0.17451	0.17451	0.295	0.1475	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-16	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	GAM-A-020	AM-241	-0.0168	0.1033	0.10331	0.136	0.068	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-08	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	GAM-A-020	AM-241	-0.02732	0.1827	0.1827	0.167	0.0835	pCi	g	ARS1-B10-02073		1	U	U				

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02073-09	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	GAM-A-020	AM-241	0.061489	0.10996	0.11001	0.183	0.0915	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-05	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	GAM-A-020	AM-241	0.050825	0.075179	0.075225	0.125	0.0625	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-12	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	GAM-A-020	AM-241	-0.01295	0.60868	0.60868	0.158	0.079	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-22	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	GAM-A-020	AM-241	0.022122	0.068041	0.068051	0.116	0.058	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-07	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	GAM-A-020	AM-241	0.006624	0.087783	0.087784	0.15	0.075	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-13	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	GAM-A-020	RA-226	6.8386	2.6086	2.6299	2.98	1.49	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-14	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	GAM-A-020	RA-226	29.473	2.613	2.9835	2.28	1.14	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-15	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	GAM-A-020	RA-226	19.591	2.6584	2.8255	2.78	1.39	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-16	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	GAM-A-020	RA-226	1.7937	0.97728	0.98139	1.41	0.705	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-08	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	GAM-A-020	RA-226	2.9129	1.4385	1.4459	1.77	0.885	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-09	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	GAM-A-020	RA-226	2.1452	1.459	1.4628	1.98	0.99	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-05	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	GAM-A-020	RA-226	2.5455	1.2306	1.2369	1.43	0.715	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-12	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	GAM-A-020	RA-226	2.868	1.4061	1.4134	1.79	0.895	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-22	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	GAM-A-020	RA-226	1.8478	1.0494	1.0533	1.43	0.715	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-07	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	GAM-A-020	RA-226	1.9406	1.0739	1.0783	1.56	0.78	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-13	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	GAM-A-020	RA-228	2.2603	0.33648	0.36365	0.3	0.15	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-14	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	GAM-A-020	RA-228	1.89	0.26105	0.2854	0.291	0.1455	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-15	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	GAM-A-020	RA-228	1.9675	0.43102	0.44743	0.349	0.1745	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-16	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	GAM-A-020	RA-228	0.66358	0.17183	0.17646	0.223	0.1115	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-08	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	GAM-A-020	RA-228	0.97838	0.19971	0.2086	0.223	0.1115	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-09	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	GAM-A-020	RA-228	1.3204	0.35375	0.36282	0.313	0.1565	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-05	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	GAM-A-020	RA-228	1.0155	0.15418	0.16616	0.199	0.0995	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-12	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	GAM-A-020	RA-228	0.87275	0.1835	0.19121	0.202	0.101	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-22	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	GAM-A-020	RA-228	0.66071	0.18978	0.19402	0.28	0.14	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-07	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	GAM-A-020	RA-228	1.2056	0.24715	0.25769	0.161	0.0805	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-13	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	GAM-A-020	U-234	2.806	1.1356	1.1551	2.14	1.07	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-14	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	GAM-A-020	U-234	26.11	1.8479	2.662	2.41	1.205	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-15	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	GAM-A-020	U-234	18.605	2.4586	2.8288	2.6	1.3	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-16	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	GAM-A-020	U-234	1.1057	0.64651	0.65175	1.28	0.64	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-08	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	GAM-A-020	U-234	2.2732	0.77949	0.79714	1.44	0.72	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-09	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	GAM-A-020	U-234	1.8799	0.98563	0.99571	1.72	0.86	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-05	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	GAM-A-020	U-234	1.2356	0.75789	0.7633	1.09	0.545	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-12	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	GAM-A-020	U-234	2.0071	0.77471	0.78859	1.57	0.785	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-22	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	GAM-A-020	U-234	1.5042	1.1126	1.1181	1.5	0.75	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-07	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	GAM-A-020	U-234	1.7792	0.80369	0.81458	1.66	0.83	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-13	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	GAM-A-020	U-235	0.1473	0.45992	0.46003	0.789	0.3945	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-14	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	GAM-A-020	U-235	2.1787	0.47942	0.50174	0.61	0.305	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-15	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	GAM-A-020	U-235	1.0759	0.50539	0.51065	0.782	0.391	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-16	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	GAM-A-020	U-235	0.22447	0.25728	0.25774	0.43	0.215	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-08	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	GAM-A-020	U-235	0.24375	0.30684	0.30729	0.509	0.2545	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-09	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	GAM-A-020	U-235	0.17662	0.32335	0.32357	0.548	0.274	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-05	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	GAM-A-020	U-235	0.097292	0.23615	0.23624	0.405	0.2025	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-12	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	GAM-A-020	U-235	-0.02809	2.0058	2.0058	0.639	0.3195	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-22	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	GAM-A-020	U-235	0.020546	0.23093	0.23093	0.406	0.203	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-07	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	GAM-A-020	U-235	0.1861	0.29029	0.29057	0.491	0.2455	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-13	TLS-SB-IA1-10 (10.5-11.5)03151C	ARS1-10-00580-013	GAM-A-020	U-238	2.806	1.1356	1.1551	2.14	1.07	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-14	TLS-SB-IA1-10 (11.5-12.0/13.9-14.4)0315	ARS1-10-00580-014	GAM-A-020	U-238	26.11	1.8479	2.662	2.41	1.205	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-15	TLS-SB-IA1-10 (17.8-18.8)03151C	ARS1-10-00580-015	GAM-A-020	U-238	18.605	2.4586	2.8288	2.6	1.3	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-16	TLS-SB-IA1-10 (20.0-21.0)03151C	ARS1-10-00580-016	GAM-A-020	U-238	1.1057	0.64651	0.65175	1.28	0.64	pCi	g	ARS1-B10-02073		1	U	U				
ARS1-B10-02073-08	TLS-SB-IA3-D06 (0.9-1.9)03151C	ARS1-10-00580-008	GAM-A-020	U-238	2.2732	0.77949	0.79714	1.44	0.72	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-09	TLS-SB-IA3-D06 (4.0-5.0)03151C	ARS1-10-00580-009	GAM-A-020	U-238	1.8799	0.98563	0.99571	1.72	0.86	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-05	TLS-SB-IA3-D07 (9.6-10.6)031510D	ARS1-10-00580-005	GAM-A-020	U-238	1.2356	0.75789	0.7633	1.09	0.545	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-12	TLS-SS-IA1-10 (1.2-1.7)03151C	ARS1-10-00580-012	GAM-A-020	U-238	2.0071	0.77471	0.78859	1.57	0.785	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-22	TLS-SS-IA3-D03 (0.2-0.7)03151C	ARS1-10-00580-022	GAM-A-020	U-238	1.5042	1.1126	1.1181	1.5	0.75	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02073-07	TLS-SS-IA3-D06 (0.4-0.9)03151C	ARS1-10-00580-007	GAM-A-020	U-238	1.7792	0.80369	0.81458	1.66	0.83	pCi	g	ARS1-B10-02073		1						
ARS1-B10-02081-20	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	GAM-A-020	AM-241	-0.23666	0.41536	0.41555	0.661	0.3305	pCi	g	ARS1-B10-02081		1	U	U				
ARS1-B10-02081-18	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	GAM-A-020	AM-241	0.030141	0.093699	0.093712	0.158	0.079	pCi	g	ARS1-B10-02081		1	U	U				
ARS1-B10-02081-19	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	GAM-A-020	AM-241	0.098432	0.17615	0.17623	0.292	0.146	pCi	g	ARS1-B10-02081		1	U	U				
ARS1-B10-02081-20	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	GAM-A-020	RA-226	276.53	6.4471	14.97	4.28	2.14	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-18	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	GAM-A-020	RA-226	1.895	1.3391	1.3425	1.69	0.845	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-19	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	GAM-A-020	RA-226	43.322	2.5982	3.3512	2.51	1.255	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-20	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	GAM-A-020	RA-228	1.6769	0.39633	0.40933	0.466	0.233	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-18	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	GAM-A-020	RA-228	1.2586	0.21599	0.22948	0.2	0.1	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-19	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	GAM-A-020	RA-228	1.2318	0.31417	0.32303	0.248	0.124	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-20	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	GAM-A-020	U-234	221.47	6.2618	17.417	5.7	2.85	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-18	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	GAM-A-020	U-234	1.7023	0.79476	0.80452	1.55	0.775	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-19	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	GAM-A-020	U-234	36.45	2.6087	3.7363	2.63	1.315	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-20	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	GAM-A-020	U-235	16.06	1.2106	1.6296	1.36	0.68	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-18	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	GAM-A-020	U-235	0.059307	0.28428	0.2843	0.488	0.244	pCi	g	ARS1-B10-02081		1	U	U				
ARS1-B10-02081-19	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	GAM-A-020	U-235	2.9241	0.63285	0.66329	0.727	0.3635	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-20	TLS-SB-IA1-3 (19.1-20.0/24.0-24.1)03151	ARS1-10-00580-034	GAM-A-020	U-238	221.47	6.2618	17.417	5.7	2.85	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-18	TLS-SB-IA3-D04 (10.0-11.0)03151C	ARS1-10-00580-031	GAM-A-020	U-238	1.7023	0.79476	0.80452	1.55	0.775	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02081-19	TLS-SS-IA1-3 (1.2-1.7)03151C	ARS1-10-00580-032	GAM-A-020	U-238	36.45	2.6087	3.7363	2.63	1.315	pCi	g	ARS1-B10-02081		1						
ARS1-B10-02088-14	TLS-SB-IA1-3 (24.1-25.1)03151C	ARS1-10-00580-035	GAM-A-020	AM-241	-0.02947	0.10089	0.10091	0.17	0.085	pCi	g	ARS1-B10-02088		1	U	U				

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ARS1-B10-02088-15	TLS-SB-IA1-3 (26.0-27.0)031510	ARS1-10-00580-036	GAM-A-020	AM-241	0.034902	0.072654	0.072677	0.122	0.061	pCi	g	ARS1-B10-02088		1	U	U				
ARS1-B10-02088-16	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	GAM-A-020	AM-241	0.043926	0.080377	0.080411	0.134	0.067	pCi	g	ARS1-B10-02088		1	U	U				
ARS1-B10-02088-14	TLS-SB-IA1-3 (24.1-25.1)031510	ARS1-10-00580-035	GAM-A-020	RA-226	4.5878	1.2364	1.2565	1.83	0.915	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-15	TLS-SB-IA1-3 (26.0-27.0)031510	ARS1-10-00580-036	GAM-A-020	RA-226	2.4144	0.87228	0.88022	1.15	0.575	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-16	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	GAM-A-020	RA-226	2.2784	1.0543	1.0604	1.44	0.72	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-14	TLS-SB-IA1-3 (24.1-25.1)031510	ARS1-10-00580-035	GAM-A-020	RA-228	1.0909	0.28154	0.28931	0.219	0.1095	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-15	TLS-SB-IA1-3 (26.0-27.0)031510	ARS1-10-00580-036	GAM-A-020	RA-228	0.73057	0.15639	0.16262	0.177	0.0885	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-16	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	GAM-A-020	RA-228	0.78607	0.15143	0.15873	0.203	0.1015	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-14	TLS-SB-IA1-3 (24.1-25.1)031510	ARS1-10-00580-035	GAM-A-020	U-234	6.1566	1.0776	1.1729	1.5	0.75	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-15	TLS-SB-IA1-3 (26.0-27.0)031510	ARS1-10-00580-036	GAM-A-020	U-234	1.6802	0.53802	0.55197	1.1	0.55	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-16	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	GAM-A-020	U-234	1.9303	0.72616	0.7403	1.29	0.645	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-14	TLS-SB-IA1-3 (24.1-25.1)031510	ARS1-10-00580-035	GAM-A-020	U-235	0.28544	0.28134	0.282	0.463	0.2315	pCi	g	ARS1-B10-02088		1	U	U				
ARS1-B10-02088-15	TLS-SB-IA1-3 (26.0-27.0)031510	ARS1-10-00580-036	GAM-A-020	U-235	0.079271	0.20944	0.20951	0.36	0.18	pCi	g	ARS1-B10-02088		1	U	U				
ARS1-B10-02088-16	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	GAM-A-020	U-235	0.10528	0.24402	0.24413	0.417	0.2085	pCi	g	ARS1-B10-02088		1	U	U				
ARS1-B10-02088-14	TLS-SB-IA1-3 (24.1-25.1)031510	ARS1-10-00580-035	GAM-A-020	U-238	6.1566	1.0776	1.1729	1.5	0.75	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-15	TLS-SB-IA1-3 (26.0-27.0)031510	ARS1-10-00580-036	GAM-A-020	U-238	1.6802	0.53802	0.55197	1.1	0.55	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02088-16	TLS-SB-IA1-3 (26.0-27.0)031510D	ARS1-10-00580-037	GAM-A-020	U-238	1.9303	0.72616	0.7403	1.29	0.645	pCi	g	ARS1-B10-02088		1						
ARS1-B10-02091-19	TLS-SB-IA1-6 (26.8-28.0)031710	ARS1-10-00600-005	GAM-A-020	AM-241	0.030342	0.084323	0.084338	0.142	0.071	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-16	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	GAM-A-020	AM-241	0.17624	0.18559	0.18581	0.305	0.1525	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-17	TLS-SB-IA1-6 (5.4-6.4)031710	ARS1-10-00600-003	GAM-A-020	AM-241	-0.03167	0.31637	0.31637	0.528	0.264	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-18	TLS-SB-IA1-6 (6.4-7.4)031710	ARS1-10-00600-004	GAM-A-020	AM-241	-0.00608	0.59584	0.59584	0.136	0.068	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-15	TLS-SS-IA1-6 (1.2-1.7)03171C	ARS1-10-00600-001	GAM-A-020	AM-241	-0.03402	0.37899	0.37899	0.234	0.117	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-20	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	GAM-A-020	AM-241	-0.02232	0.13265	0.13265	0.118	0.059	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-19	TLS-SB-IA1-6 (26.8-28.0)031710	ARS1-10-00600-005	GAM-A-020	RA-226	2.1879	1.1331	1.1384	1.48	0.74	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-16	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	GAM-A-020	RA-226	49.162	2.9352	3.7927	2.8	1.4	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-17	TLS-SB-IA1-6 (5.4-6.4)031710	ARS1-10-00600-003	GAM-A-020	RA-226	118.52	5.8377	8.2224	4.83	2.415	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-18	TLS-SB-IA1-6 (6.4-7.4)031710	ARS1-10-00600-004	GAM-A-020	RA-226	3.1953	1.3408	1.3499	1.65	0.825	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-15	TLS-SS-IA1-6 (1.2-1.7)03171C	ARS1-10-00600-001	GAM-A-020	RA-226	3.9672	2.1674	2.1765	2.87	1.435	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-20	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	GAM-A-020	RA-226	1.6676	1.0506	1.0539	1.41	0.705	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-19	TLS-SB-IA1-6 (26.8-28.0)031710	ARS1-10-00600-005	GAM-A-020	RA-228	0.82447	0.17332	0.18036	0.222	0.111	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-16	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	GAM-A-020	RA-228	1.8613	0.28341	0.30533	0.254	0.127	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-17	TLS-SB-IA1-6 (5.4-6.4)031710	ARS1-10-00600-003	GAM-A-020	RA-228	2.3832	0.50248	0.5231	0.626	0.313	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-18	TLS-SB-IA1-6 (6.4-7.4)031710	ARS1-10-00600-004	GAM-A-020	RA-228	1.3147	0.23309	0.24651	0.242	0.121	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-15	TLS-SS-IA1-6 (1.2-1.7)03171C	ARS1-10-00600-001	GAM-A-020	RA-228	1.2408	0.29815	0.30779	0.284	0.142	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-20	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	GAM-A-020	RA-228	0.69025	0.18569	0.19049	0.254	0.127	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-19	TLS-SB-IA1-6 (26.8-28.0)031710	ARS1-10-00600-005	GAM-A-020	U-234	0.56465	1.0546	1.0554	1.5	0.75	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-16	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	GAM-A-020	U-234	44.649	2.8126	4.3181	2.77	1.385	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-17	TLS-SB-IA1-6 (5.4-6.4)031710	ARS1-10-00600-003	GAM-A-020	U-234	58.883	4.1263	6.0524	4.2	2.1	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-18	TLS-SB-IA1-6 (6.4-7.4)031710	ARS1-10-00600-004	GAM-A-020	U-234	2.401	0.95311	0.96926	1.65	0.825	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-15	TLS-SS-IA1-6 (1.2-1.7)03171C	ARS1-10-00600-001	GAM-A-020	U-234	3.1645	1.5181	1.5357	2.55	1.275	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-20	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	GAM-A-020	U-234	1.2939	0.68389	0.69045	1.27	0.635	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-19	TLS-SB-IA1-6 (26.8-28.0)031710	ARS1-10-00600-005	GAM-A-020	U-235	0.18755	0.27301	0.27331	0.46	0.23	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-16	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	GAM-A-020	U-235	3.0969	0.69819	0.72919	0.829	0.4145	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-17	TLS-SB-IA1-6 (5.4-6.4)031710	ARS1-10-00600-003	GAM-A-020	U-235	4.5386	1.1251	1.1666	1.37	0.685	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-18	TLS-SB-IA1-6 (6.4-7.4)031710	ARS1-10-00600-004	GAM-A-020	U-235	0.068692	0.28124	0.28128	0.486	0.243	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-15	TLS-SS-IA1-6 (1.2-1.7)03171C	ARS1-10-00600-001	GAM-A-020	U-235	0.14538	0.50002	0.50012	0.859	0.4295	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-20	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	GAM-A-020	U-235	0.025935	0.27246	0.27247	0.468	0.234	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-19	TLS-SB-IA1-6 (26.8-28.0)031710	ARS1-10-00600-005	GAM-A-020	U-238	0.56465	1.0546	1.0554	1.5	0.75	pCi	g	ARS1-B10-02091		1	U	U				
ARS1-B10-02091-16	TLS-SB-IA1-6 (3.0-4.0)031710	ARS1-10-00600-002	GAM-A-020	U-238	44.649	2.8126	4.3181	2.77	1.385	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-17	TLS-SB-IA1-6 (5.4-6.4)031710	ARS1-10-00600-003	GAM-A-020	U-238	58.883	4.1263	6.0524	4.2	2.1	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-18	TLS-SB-IA1-6 (6.4-7.4)031710	ARS1-10-00600-004	GAM-A-020	U-238	2.401	0.95311	0.96926	1.65	0.825	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-15	TLS-SS-IA1-6 (1.2-1.7)03171C	ARS1-10-00600-001	GAM-A-020	U-238	3.1645	1.5181	1.5357	2.55	1.275	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02091-20	TLS-SS-IA6-10 (9.1-9.6)03171C	ARS1-10-00600-006	GAM-A-020	U-238	1.2939	0.68389	0.69045	1.27	0.635	pCi	g	ARS1-B10-02091		1						
ARS1-B10-02101-13	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	GAM-A-020	AM-241	0.047882	0.083642	0.08368	0.14	0.07	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-14	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	GAM-A-020	AM-241	0.008639	0.083978	0.083979	0.143	0.0715	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-15	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	GAM-A-020	AM-241	-0.00542	0.090541	0.090541	0.154	0.077	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-07	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	GAM-A-020	AM-241	0.088651	0.11655	0.11665	0.192	0.096	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-12	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	GAM-A-020	AM-241	-0.11757	0.15334	0.15346	0.241	0.1205	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-13	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	GAM-A-020	RA-226	1.2815	0.90603	0.90819	1.56	0.78	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-14	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	GAM-A-020	RA-226	2.3041	1.1515	1.157	1.46	0.73	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-15	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	GAM-A-020	RA-226	1.4372	0.88193	0.88472	1.48	0.74	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-07	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	GAM-A-020	RA-226	2.341	1.1213	1.1274	1.49	0.745	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-12	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	GAM-A-020	RA-226	3.9191	1.609	1.6209	1.96	0.98	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-13	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	GAM-A-020	RA-228	1.105	0.20391	0.21477	0.175	0.0875	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-14	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	GAM-A-020	RA-228	1.411	0.22137	0.23753	0.109	0.0545	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-15	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	GAM-A-020	RA-228	0.80727	0.19658	0.20266	0.317	0.1585	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-07	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	GAM-A-020	RA-228	0.90921	0.16999	0.17867	0.128	0.064	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-12	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	GAM-A-020	RA-228	1.1158	0.19624	0.20753	0.269	0.1345	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-13	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	GAM-A-020	U-234	0.65662	1.0966	1.0977	1.53	0.765	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-14	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	GAM-A-020	U-234	1.531	1.038	1.0441	1.39	0.695	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-15	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	GAM-A-020	U-234	0.51502	0.71795	0.71899	1.16	0.58	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-07	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	GAM-A-020	U-234	2.7008	1.2898	1.3054	1.73	0.865	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-12	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	GAM-A-020	U-234	2.4555	0.97928	0.99626	1.93	0.965	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-13	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	GAM-A-020	U-235	-0.06773	3.5935	3.5935	0.42	0.21	pCi	g	ARS1-B10-02101		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02101-14	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	GAM-A-020	U-235	0.032488	0.26704	0.26704	0.462	0.231	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-15	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	GAM-A-020	U-235	-0.01326	0.50016	0.50016	0.515	0.2575	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-07	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	GAM-A-020	U-235	0.078867	0.27491	0.27497	0.472	0.236	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-12	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	GAM-A-020	U-235	-0.11166	4.4664	4.4664	0.647	0.3235	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-13	TLS-SB-IA1-DOE-B2 (1.0-2.0)03171C	ARS1-10-00600-015	GAM-A-020	U-238	0.65662	1.0966	1.0977	1.53	0.765	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-14	TLS-SB-IA1-DOE-B2 (6.7-7.4)03171C	ARS1-10-00600-018	GAM-A-020	U-238	1.531	1.038	1.0441	1.39	0.695	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-15	TLS-SB-IA1-DOE-B2 (7.6-8.6)03171C	ARS1-10-00600-019	GAM-A-020	U-238	0.51502	0.71795	0.71899	1.16	0.58	pCi	g	ARS1-B10-02101		1	U	U				
ARS1-B10-02101-07	TLS-SB-IA6-10 (17.0-18.0)03171C	ARS1-10-00600-009	GAM-A-020	U-238	2.7008	1.2898	1.3054	1.73	0.865	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02101-12	TLS-SS-IA1-DOE-B2 (0.5-1.0)03171C	ARS1-10-00600-014	GAM-A-020	U-238	2.4555	0.97928	0.99626	1.93	0.965	pCi	g	ARS1-B10-02101		1						
ARS1-B10-02118-19	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	GAM-A-020	AM-241	-0.09235	0.15313	0.15321	0.254	0.127	pCi	g	ARS1-B10-02118		1	U	U				
ARS1-B10-02118-20	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	GAM-A-020	AM-241	0.040978	0.19515	0.19516	0.332	0.166	pCi	g	ARS1-B10-02118		1	U	U				
ARS1-B10-02118-18	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	GAM-A-020	AM-241	-0.06671	0.56313	0.56314	0.541	0.2705	pCi	g	ARS1-B10-02118		1	U	U				
ARS1-B10-02118-17	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	GAM-A-020	AM-241	0.017593	0.10432	0.10432	0.178	0.089	pCi	g	ARS1-B10-02118		1	U	U				
ARS1-B10-02118-19	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	GAM-A-020	RA-226	13.934	2.0864	2.1946	2.23	1.115	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-20	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	GAM-A-020	RA-226	6.2788	2.5106	2.5293	3.29	1.645	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-18	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	GAM-A-020	RA-226	65.3	5.0875	6.0503	4.21	2.105	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-17	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	GAM-A-020	RA-226	5.3105	1.6823	1.7022	2.33	1.165	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-19	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	GAM-A-020	RA-228	2.1835	0.42783	0.4481	0.342	0.171	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-20	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	GAM-A-020	RA-228	2.1443	0.42629	0.44592	0.347	0.1735	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-18	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	GAM-A-020	RA-228	3.0764	0.6401	0.66756	0.506	0.253	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-17	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	GAM-A-020	RA-228	1.407	0.26637	0.27987	0.192	0.096	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-19	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	GAM-A-020	U-234	10.821	2.029	2.1861	2.29	1.145	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-20	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	GAM-A-020	U-234	3.5011	1.6605	1.6803	2.97	1.485	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-18	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	GAM-A-020	U-234	71.937	4.2427	6.7726	4.71	2.355	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-17	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	GAM-A-020	U-234	4.6947	1.9032	1.9342	2.29	1.145	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-19	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	GAM-A-020	U-235	0.7865	0.42241	0.42578	0.664	0.332	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-20	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	GAM-A-020	U-235	0.28448	0.52061	0.52097	0.894	0.447	pCi	g	ARS1-B10-02118		1	U	U				
ARS1-B10-02118-18	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	GAM-A-020	U-235	4.8317	1.012	1.0644	1.07	0.535	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-17	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	GAM-A-020	U-235	0.28424	0.36676	0.36727	0.616	0.308	pCi	g	ARS1-B10-02118		1	U	U				
ARS1-B10-02118-19	TLS-SB-IA1-DOE-B1 (13.0-14.0)03181C	ARS1-10-00609-009	GAM-A-020	U-238	10.821	2.029	2.1861	2.29	1.145	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-20	TLS-SB-IA1-DOE-B1 (14.2-15.2)03181C	ARS1-10-00609-010	GAM-A-020	U-238	3.5011	1.6605	1.6803	2.97	1.485	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-18	TLS-SB-IA1-DOE-B1 (7.0-8.0)03181C	ARS1-10-00609-008	GAM-A-020	U-238	71.937	4.2427	6.7726	4.71	2.355	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02118-17	TLS-SS-IA1-DOE-B1 (0.4-0.9)03181C	ARS1-10-00609-005	GAM-A-020	U-238	4.6947	1.9032	1.9342	2.29	1.145	pCi	g	ARS1-B10-02118		1						
ARS1-B10-02127-06	TLS-SB-IA1-DOE-B3 (7.1-8.1)03181C	ARS1-10-00609-015	GAM-A-020	AM-241	-0.0338	0.22387	0.22388	0.223	0.1115	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-07	TLS-SB-IA1-DOE-B3 (8.2-9.2)03181C	ARS1-10-00609-016	GAM-A-020	AM-241	0.007267	0.093305	0.093306	0.159	0.0795	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-05	TLS-SB-IA1-DOE-B3 (2.5-3.5)03181C	ARS1-10-00609-012	GAM-A-020	AM-241	-0.01495	0.3118	0.3118	0.28	0.14	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-09	TLS-SB-IA6-20 (4.0-5.0)03181C	ARS1-10-00609-018	GAM-A-020	AM-241	0.02928	0.078872	0.078887	0.133	0.0665	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-10	TLS-SB-IA6-20 (6.6-7.6)03181C	ARS1-10-00609-019	GAM-A-020	AM-241	0.007578	0.085228	0.085229	0.146	0.073	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-18	TLS-SB-IA6-6 (14.0-15.0)03181C	ARS1-10-00609-027	GAM-A-020	AM-241	0.061687	0.076079	0.076147	0.126	0.063	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-19	TLS-SB-IA6-6 (18.0-19.0)03181C	ARS1-10-00609-028	GAM-A-020	AM-241	0.000553	0.16574	0.16574	0.279	0.1395	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-17	TLS-SB-IA6-6 (8.0-9.0)03181C	ARS1-10-00609-026	GAM-A-020	AM-241	0.001574	0.089503	0.089503	0.153	0.0765	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-13	TLS-SB-IA6-9 (4.0-5.0)03181C	ARS1-10-00609-022	GAM-A-020	AM-241	0.022157	0.095036	0.095043	0.162	0.081	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-04	TLS-SS-IA1-DOE-B3 (1.0-1.5)03181C	ARS1-10-00609-011	GAM-A-020	AM-241	0.058007	0.11415	0.1142	0.191	0.0955	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-21	TLS-SS-IA6-22 (1.5-2.0)03181C	ARS1-10-00609-030	GAM-A-020	AM-241	0.021194	0.088128	0.088135	0.149	0.0745	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-16	TLS-SS-IA6-6 (4.5-5.0)03181C	ARS1-10-00609-025	GAM-A-020	AM-241	-0.04959	0.1131	0.11314	0.172	0.086	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-06	TLS-SB-IA1-DOE-B3 (7.1-8.1)03181C	ARS1-10-00609-015	GAM-A-020	RA-226	13.694	1.9769	2.0928	1.99	0.995	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-07	TLS-SB-IA1-DOE-B3 (8.2-9.2)03181C	ARS1-10-00609-016	GAM-A-020	RA-226	2.7278	1.2062	1.2136	1.58	0.79	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-05	TLS-SB-IA1-DOE-B3 (2.5-3.5)03181C	ARS1-10-00609-012	GAM-A-020	RA-226	25.641	2.2321	2.5596	2.57	1.285	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-09	TLS-SB-IA6-20 (4.0-5.0)03181C	ARS1-10-00609-018	GAM-A-020	RA-226	2.5424	1.1284	1.1352	1.41	0.705	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-10	TLS-SB-IA6-20 (6.6-7.6)03181C	ARS1-10-00609-019	GAM-A-020	RA-226	2.6353	1.3015	1.3082	1.6	0.8	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-18	TLS-SB-IA6-6 (14.0-15.0)03181C	ARS1-10-00609-027	GAM-A-020	RA-226	1.8062	1.0036	1.0075	1.72	0.86	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-19	TLS-SB-IA6-6 (18.0-19.0)03181C	ARS1-10-00609-028	GAM-A-020	RA-226	2.3234	1.4085	1.4133	1.91	0.955	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-17	TLS-SB-IA6-6 (8.0-9.0)03181C	ARS1-10-00609-026	GAM-A-020	RA-226	2.1484	1.3505	1.3548	1.63	0.815	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-13	TLS-SB-IA6-9 (4.0-5.0)03181C	ARS1-10-00609-022	GAM-A-020	RA-226	1.881	1.1387	1.1426	1.88	0.94	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-04	TLS-SS-IA1-DOE-B3 (1.0-1.5)03181C	ARS1-10-00609-011	GAM-A-020	RA-226	6.3596	2.3836	2.4047	2.66	1.33	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-21	TLS-SS-IA6-22 (1.5-2.0)03181C	ARS1-10-00609-030	GAM-A-020	RA-226	3.0832	1.5541	1.5617	1.82	0.91	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-16	TLS-SS-IA6-6 (4.5-5.0)03181C	ARS1-10-00609-025	GAM-A-020	RA-226	1.8169	1.0807	1.0845	1.63	0.815	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-06	TLS-SB-IA1-DOE-B3 (7.1-8.1)03181C	ARS1-10-00609-015	GAM-A-020	RA-228	1.4301	0.30636	0.31877	0.226	0.113	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-07	TLS-SB-IA1-DOE-B3 (8.2-9.2)03181C	ARS1-10-00609-016	GAM-A-020	RA-228	0.78496	0.18785	0.19386	0.329	0.1645	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-05	TLS-SB-IA1-DOE-B3 (2.5-3.5)03181C	ARS1-10-00609-012	GAM-A-020	RA-228	1.3983	0.26517	0.27856	0.182	0.091	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-09	TLS-SB-IA6-20 (4.0-5.0)03181C	ARS1-10-00609-018	GAM-A-020	RA-228	1.0066	0.22961	0.23769	0.18	0.09	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-10	TLS-SB-IA6-20 (6.6-7.6)03181C	ARS1-10-00609-019	GAM-A-020	RA-228	0.99285	0.21152	0.22019	0.199	0.0995	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-18	TLS-SB-IA6-6 (14.0-15.0)03181C	ARS1-10-00609-027	GAM-A-020	RA-228	0.82059	0.16485	0.17229	0.162	0.081	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-19	TLS-SB-IA6-6 (18.0-19.0)03181C	ARS1-10-00609-028	GAM-A-020	RA-228	1.205	0.25381	0.26408	0.173	0.0865	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-17	TLS-SB-IA6-6 (8.0-9.0)03181C	ARS1-10-00609-026	GAM-A-020	RA-228	1.0842	0.21818	0.22818	0.27	0.135	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-13	TLS-SB-IA6-9 (4.0-5.0)03181C	ARS1-10-00609-022	GAM-A-020	RA-228	0.58091	0.1925	0.1958	0.349	0.1745	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-04	TLS-SS-IA1-DOE-B3 (1.0-1.5)03181C	ARS1-10-00609-011	GAM-A-020	RA-228	0.92313	0.24386	0.25017	0.365	0.1825	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-21	TLS-SS-IA6-22 (1.5-2.0)03181C	ARS1-10-00609-030	GAM-A-020	RA-228	0.62386	0.18055	0.18445	0.282	0.141	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-16	TLS-SS-IA6-6 (4.5-5.0)03181C	ARS1-10-00609-025	GAM-A-020	RA-228	0.91336	0.22237	0.22914	0.232	0.116	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-06	TLS-SB-IA1-DOE-B3 (7.1-8.1)03181C	ARS1-10-00609-015	GAM-A-020	U-234	11.384	1.3034	1.5482	1.81	0.905	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-07	TLS-SB-IA1-DOE-B3 (8.2-9.2)03181C	ARS1-10-00609-016	GAM-A-020	U-234	1.927	0.73514	0.74929	1.25	0.625	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-05	TLS-SB-IA1-DOE-B3 (2.5-3.5)03181C	ARS1-10-00609-012	GAM-A-020	U-234	21.939	2.4463	2.9286	2.63	1.315	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-09	TLS-SB-IA6-20 (4.0-5.0)03181C	ARS1-10-00609-018	GAM-A-020	U-234	1.3596	0.89603	0.90157	1.3	0.65	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-10	TLS-SB-IA6-20 (6.6-7.6)03181C	ARS1-10-00609-019	GAM-A-020	U-234	1.2725	0.64949	0.65617	1.17	0.585	pCi	g	ARS1-B10-02127		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02127-18	TLS-SB-IA6-6 (14.0-15.0)031810	ARS1-10-00609-027	GAM-A-020	U-234	1.6756	0.89419	0.90261	1.56	0.78	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-19	TLS-SB-IA6-6 (18.0-19.0)031810	ARS1-10-00609-028	GAM-A-020	U-234	3.3958	1.3486	1.3722	1.91	0.955	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-17	TLS-SB-IA6-6 (8.0-9.0)031810	ARS1-10-00609-026	GAM-A-020	U-234	1.415	0.69349	0.70122	1.29	0.645	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-13	TLS-SB-IA6-9 (4.0-5.0)031810	ARS1-10-00609-022	GAM-A-020	U-234	2.0999	0.78099	0.79605	1.51	0.755	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-04	TLS-SS-IA1-DOE-B3 (1.0-1.5)031810	ARS1-10-00609-011	GAM-A-020	U-234	6.1462	1.3209	1.3982	2.22	1.11	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-21	TLS-SS-IA6-22 (1.5-2.0)031810	ARS1-10-00609-030	GAM-A-020	U-234	1.6532	0.72094	0.73141	1.62	0.81	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-16	TLS-SS-IA6-6 (4.5-5.0)031810	ARS1-10-00609-025	GAM-A-020	U-234	1.7091	0.83014	0.83987	1.63	0.815	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-06	TLS-SB-IA1-DOE-B3 (7.1-8.1)031810	ARS1-10-00609-015	GAM-A-020	U-235	0.70109	0.39948	0.40234	0.674	0.337	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-07	TLS-SB-IA1-DOE-B3 (8.2-9.2)031810	ARS1-10-00609-016	GAM-A-020	U-235	0.066328	0.27691	0.27694	0.477	0.2385	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-05	TLS-SB-IA1-DOE-B3 (2.5-3.5)031810	ARS1-10-00609-012	GAM-A-020	U-235	1.6303	0.51092	0.52278	0.778	0.389	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-09	TLS-SB-IA6-20 (4.0-5.0)031810	ARS1-10-00609-018	GAM-A-020	U-235	0.090049	0.23993	0.24	0.411	0.2055	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-10	TLS-SB-IA6-20 (6.6-7.6)031810	ARS1-10-00609-019	GAM-A-020	U-235	0.15177	0.26975	0.26995	0.454	0.227	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-18	TLS-SB-IA6-6 (14.0-15.0)031810	ARS1-10-00609-027	GAM-A-020	U-235	-0.09654	341.95	341.95	0.481	0.2405	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-19	TLS-SB-IA6-6 (18.0-19.0)031810	ARS1-10-00609-028	GAM-A-020	U-235	0.037399	0.28736	0.28737	0.503	0.2515	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-17	TLS-SB-IA6-6 (8.0-9.0)031810	ARS1-10-00609-026	GAM-A-020	U-235	0.02344	0.28699	0.287	0.494	0.247	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-13	TLS-SB-IA6-9 (4.0-5.0)031810	ARS1-10-00609-022	GAM-A-020	U-235	0.2963	0.31519	0.31584	0.519	0.2595	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-04	TLS-SS-IA1-DOE-B3 (1.0-1.5)031810	ARS1-10-00609-011	GAM-A-020	U-235	0.46776	0.38632	0.38764	0.634	0.317	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-21	TLS-SS-IA6-22 (1.5-2.0)031810	ARS1-10-00609-030	GAM-A-020	U-235	0.064917	0.2786	0.27864	0.483	0.2415	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-16	TLS-SS-IA6-6 (4.5-5.0)031810	ARS1-10-00609-025	GAM-A-020	U-235	0.016085	0.30451	0.30451	0.528	0.264	pCi	g	ARS1-B10-02127		1	U	U				
ARS1-B10-02127-06	TLS-SB-IA1-DOE-B3 (7.1-8.1)031810	ARS1-10-00609-015	GAM-A-020	U-238	11.384	1.3034	1.5482	1.81	0.905	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-07	TLS-SB-IA1-DOE-B3 (8.2-9.2)031810	ARS1-10-00609-016	GAM-A-020	U-238	1.927	0.73514	0.74929	1.25	0.625	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-05	TLS-SB-IA1-DOE-B3 (2.5-3.5)031810	ARS1-10-00609-012	GAM-A-020	U-238	21.939	2.4463	2.9286	2.63	1.315	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-09	TLS-SB-IA6-20 (4.0-5.0)031810	ARS1-10-00609-018	GAM-A-020	U-238	1.3596	0.89603	0.90157	1.3	0.65	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-10	TLS-SB-IA6-20 (6.6-7.6)031810	ARS1-10-00609-019	GAM-A-020	U-238	1.2725	0.64949	0.65617	1.17	0.585	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-18	TLS-SB-IA6-6 (14.0-15.0)031810	ARS1-10-00609-027	GAM-A-020	U-238	1.6756	0.89419	0.90261	1.56	0.78	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-19	TLS-SB-IA6-6 (18.0-19.0)031810	ARS1-10-00609-028	GAM-A-020	U-238	3.3958	1.3486	1.3722	1.91	0.955	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-17	TLS-SB-IA6-6 (8.0-9.0)031810	ARS1-10-00609-026	GAM-A-020	U-238	1.415	0.69349	0.70122	1.29	0.645	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-13	TLS-SB-IA6-9 (4.0-5.0)031810	ARS1-10-00609-022	GAM-A-020	U-238	2.0999	0.78099	0.79605	1.51	0.755	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-04	TLS-SS-IA1-DOE-B3 (1.0-1.5)031810	ARS1-10-00609-011	GAM-A-020	U-238	6.1462	1.3209	1.3982	2.22	1.11	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-21	TLS-SS-IA6-22 (1.5-2.0)031810	ARS1-10-00609-030	GAM-A-020	U-238	1.6532	0.72094	0.73141	1.62	0.81	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02127-16	TLS-SS-IA6-6 (4.5-5.0)031810	ARS1-10-00609-025	GAM-A-020	U-238	1.7091	0.83014	0.83987	1.63	0.815	pCi	g	ARS1-B10-02127		1						
ARS1-B10-02142-10	TLS-SB-IA6-21 (2.5-3.5)031810	ARS1-10-00609-035	GAM-A-020	AM-241	0.003525	0.083944	0.083944	0.145	0.0725	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-12	TLS-SB-IA6-21 (9.0-10.0)031810	ARS1-10-00609-037	GAM-A-020	AM-241	-0.0289	0.13032	0.13033	0.139	0.0695	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-14	TLS-SB-IA6-5 (16.0-17.0)031810	ARS1-10-00609-039	GAM-A-020	AM-241	0.024045	0.078004	0.078014	0.132	0.066	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-15	TLS-SB-IA6-5 (18.0-19.0)031810	ARS1-10-00609-040	GAM-A-020	AM-241	0.03271	0.083064	0.083083	0.14	0.07	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-16	TLS-SB-IA6-5 (23.0-24.0)031810	ARS1-10-00609-041	GAM-A-020	AM-241	-0.01655	0.17179	0.1718	0.217	0.1085	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-13	TLS-SS-IA6-5 (12.3-12.8)031810	ARS1-10-00609-038	GAM-A-020	AM-241	0.016967	0.083209	0.083214	0.141	0.0705	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-10	TLS-SB-IA6-21 (2.5-3.5)031810	ARS1-10-00609-035	GAM-A-020	RA-226	2.7439	1.1971	1.205	1.49	0.745	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-12	TLS-SB-IA6-21 (9.0-10.0)031810	ARS1-10-00609-037	GAM-A-020	RA-226	2.0384	1.2282	1.2325	1.47	0.735	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-14	TLS-SB-IA6-5 (16.0-17.0)031810	ARS1-10-00609-039	GAM-A-020	RA-226	1.6919	1.2671	1.27	1.57	0.785	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-15	TLS-SB-IA6-5 (18.0-19.0)031810	ARS1-10-00609-040	GAM-A-020	RA-226	1.5679	1.056	1.0587	1.51	0.755	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-16	TLS-SB-IA6-5 (23.0-24.0)031810	ARS1-10-00609-041	GAM-A-020	RA-226	2.6165	1.3089	1.3155	1.71	0.855	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-13	TLS-SS-IA6-5 (12.3-12.8)031810	ARS1-10-00609-038	GAM-A-020	RA-226	1.8833	1.0539	1.0579	1.37	0.685	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-10	TLS-SB-IA6-21 (2.5-3.5)031810	ARS1-10-00609-035	GAM-A-020	RA-228	0.6593	0.14537	0.15093	0.201	0.1005	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-12	TLS-SB-IA6-21 (9.0-10.0)031810	ARS1-10-00609-037	GAM-A-020	RA-228	1.0941	0.22095	0.231	0.156	0.078	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-14	TLS-SB-IA6-5 (16.0-17.0)031810	ARS1-10-00609-039	GAM-A-020	RA-228	0.998	0.25484	0.26215	0.218	0.109	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-15	TLS-SB-IA6-5 (18.0-19.0)031810	ARS1-10-00609-040	GAM-A-020	RA-228	1.2799	0.29159	0.30187	0.223	0.1115	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-16	TLS-SB-IA6-5 (23.0-24.0)031810	ARS1-10-00609-041	GAM-A-020	RA-228	0.94469	0.22852	0.23556	0.179	0.0895	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-13	TLS-SS-IA6-5 (12.3-12.8)031810	ARS1-10-00609-038	GAM-A-020	RA-228	1.062	0.24742	0.25577	0.194	0.097	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-10	TLS-SB-IA6-21 (2.5-3.5)031810	ARS1-10-00609-035	GAM-A-020	U-234	1.6398	0.70762	0.71778	1.3	0.65	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-12	TLS-SB-IA6-21 (9.0-10.0)031810	ARS1-10-00609-037	GAM-A-020	U-234	1.3436	0.83708	0.84287	1.15	0.575	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-14	TLS-SB-IA6-5 (16.0-17.0)031810	ARS1-10-00609-039	GAM-A-020	U-234	1.4874	0.58611	0.59619	1.17	0.585	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-15	TLS-SB-IA6-5 (18.0-19.0)031810	ARS1-10-00609-040	GAM-A-020	U-234	1.8863	0.76445	0.7775	1.34	0.67	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-16	TLS-SB-IA6-5 (23.0-24.0)031810	ARS1-10-00609-041	GAM-A-020	U-234	3.1197	0.75276	0.78792	1.69	0.845	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-13	TLS-SS-IA6-5 (12.3-12.8)031810	ARS1-10-00609-038	GAM-A-020	U-234	1.1116	0.51837	0.52475	1.1	0.55	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-10	TLS-SB-IA6-21 (2.5-3.5)031810	ARS1-10-00609-035	GAM-A-020	U-235	0.22295	0.21581	0.21635	0.353	0.1765	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-12	TLS-SB-IA6-21 (9.0-10.0)031810	ARS1-10-00609-037	GAM-A-020	U-235	0.058454	0.25226	0.25229	0.431	0.2155	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-14	TLS-SB-IA6-5 (16.0-17.0)031810	ARS1-10-00609-039	GAM-A-020	U-235	0.084376	0.26252	0.26258	0.447	0.2235	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-15	TLS-SB-IA6-5 (18.0-19.0)031810	ARS1-10-00609-040	GAM-A-020	U-235	0.10142	0.26537	0.26546	0.454	0.227	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-16	TLS-SB-IA6-5 (23.0-24.0)031810	ARS1-10-00609-041	GAM-A-020	U-235	0.029636	0.27902	0.27903	0.486	0.243	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-13	TLS-SS-IA6-5 (12.3-12.8)031810	ARS1-10-00609-038	GAM-A-020	U-235	-0.06279	3.9329	3.9329	0.436	0.218	pCi	g	ARS1-B10-02142		1	U	U				
ARS1-B10-02142-10	TLS-SB-IA6-21 (2.5-3.5)031810	ARS1-10-00609-035	GAM-A-020	U-238	1.6398	0.70762	0.71778	1.3	0.65	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-12	TLS-SB-IA6-21 (9.0-10.0)031810	ARS1-10-00609-037	GAM-A-020	U-238	1.3436	0.83708	0.84287	1.15	0.575	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-14	TLS-SB-IA6-5 (16.0-17.0)031810	ARS1-10-00609-039	GAM-A-020	U-238	1.4874	0.58611	0.59619	1.17	0.585	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-15	TLS-SB-IA6-5 (18.0-19.0)031810	ARS1-10-00609-040	GAM-A-020	U-238	1.8863	0.76445	0.7775	1.34	0.67	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-16	TLS-SB-IA6-5 (23.0-24.0)031810	ARS1-10-00609-041	GAM-A-020	U-238	3.1197	0.75276	0.78792	1.69	0.845	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02142-13	TLS-SS-IA6-5 (12.3-12.8)031810	ARS1-10-00609-038	GAM-A-020	U-238	1.1116	0.51837	0.52475	1.1	0.55	pCi	g	ARS1-B10-02142		1						
ARS1-B10-02167-18	TLS-SB-IA3-D02 (1.7-2.7)031610	ARS1-10-00591-008	GAM-A-020	AM-241	0.04772	0.103	0.10303	0.173	0.0865	pCi	g	ARS1-B10-02167		1	U	U				
ARS1-B10-02167-17	TLS-SS-IA3-D02 (0.2-0.7)031610	ARS1-10-00591-007	GAM-A-020	AM-241	-0.01585	0.22372	0.22372	0.126	0.063	pCi	g	ARS1-B10-02167		1	U	U				
ARS1-B10-02167-18	TLS-SB-IA3-D02 (1.7-2.7)031610	ARS1-10-00591-008	GAM-A-020	RA-226	2.3857	1.1258	1.1318	1.69	0.845	pCi	g	ARS1-B10-02167		1						
ARS1-B10-02167-17	TLS-SS-IA3-D02 (0.2-0.7)031610	ARS1-10-00591-007	GAM-A-020	RA-226	3.4715	1.4521	1.4625	1.7	0.85	pCi	g	ARS1-B10-02167		1						
ARS1-B10-02167-18	TLS-SB-IA3-D02 (1.7-2.7)031610	ARS1-10-00591-008	GAM-A-020	RA-228	1.3501	0.2498	0.26304	0.271	0.1355	pCi	g	ARS1-B10-02167		1						
ARS1-B10-02167-17	TLS-SS-IA3-D02 (0.2-0.7)031610	ARS1-10-00591-007	GAM-A-020	RA-228	0.65271	0.17704	0.18155	0.277	0.1385	pCi	g	ARS1-B10-02167		1						
ARS1-B10-02167-18	TLS-SB-IA3-D02 (1.7-2.7)031610	ARS1-10-00591-008	GAM-A-020	U-234	2.0561	0.83111	0.84537	1.63	0.815	pCi	g	ARS1-B10-02167		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02167-17	TLS-SS-IA3-D02 (0.2-0.7)03161C	ARS1-10-00591-007	GAM-A-020	U-234	2.7525	0.73143	0.75881	1.33	0.665	pCi	g	ARS1-B10-02167		1						
ARS1-B10-02167-18	TLS-SB-IA3-D02 (1.7-2.7)03161C	ARS1-10-00591-008	GAM-A-020	U-235	0.041996	0.31492	0.31493	0.549	0.2745	pCi	g	ARS1-B10-02167		1	U	U				
ARS1-B10-02167-17	TLS-SS-IA3-D02 (0.2-0.7)03161C	ARS1-10-00591-007	GAM-A-020	U-235	0.12581	0.29921	0.29933	0.507	0.2535	pCi	g	ARS1-B10-02167		1	U	U				
ARS1-B10-02167-18	TLS-SB-IA3-D02 (1.7-2.7)03161C	ARS1-10-00591-008	GAM-A-020	U-238	2.0561	0.83111	0.84537	1.63	0.815	pCi	g	ARS1-B10-02167		1						
ARS1-B10-02167-17	TLS-SS-IA3-D02 (0.2-0.7)03161C	ARS1-10-00591-007	GAM-A-020	U-238	2.7525	0.73143	0.75881	1.33	0.665	pCi	g	ARS1-B10-02167		1						
ARS1-B10-02178-18	TLS-SB-IA1-12 (11.3-12.0)03161C	ARS1-10-00591-026	GAM-A-020	AM-241	-0.01297	3.494	3.494	0.323	0.1615	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-19	TLS-SB-IA1-12 (16.3-17.3)03161C	ARS1-10-00591-027	GAM-A-020	AM-241	-0.02656	0.09318	0.09319	0.119	0.0595	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-15	TLS-SB-IA1-12 (2.5-3.5)03161C	ARS1-10-00591-023	GAM-A-020	AM-241	-0.00581	8.6843	8.6843	0.238	0.119	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-16	TLS-SB-IA1-12 (6.5-7.5)03161C	ARS1-10-00591-024	GAM-A-020	AM-241	-0.18887	0.49917	0.49927	0.827	0.4135	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-17	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	GAM-A-020	AM-241	-0.02837	0.53193	0.53193	0.692	0.346	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-12	TLS-SB-IA1-5 (14.6-15.6)03161C	ARS1-10-00591-020	GAM-A-020	AM-241	0.18504	0.24051	0.24071	0.397	0.1985	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-13	TLS-SB-IA1-5 (24.0-25.0)03161C	ARS1-10-00591-021	GAM-A-020	AM-241	0.030287	0.079476	0.079492	0.134	0.067	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-11	TLS-SB-IA1-5 (7.0-8.0)03161C	ARS1-10-00591-019	GAM-A-020	AM-241	0.007182	0.62019	0.62019	1.03	0.515	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-09	TLS-SB-IA3-D01 (10.4-11.4)03161C	ARS1-10-00591-016	GAM-A-020	AM-241	-0.00708	0.48201	0.48201	0.155	0.0775	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-06	TLS-SB-IA3-D01 (4.0-5.0)03161C	ARS1-10-00591-013	GAM-A-020	AM-241	0.001398	0.15125	0.15125	0.26	0.13	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-08	TLS-SB-IA3-D01 (9.0-10.0)03161C	ARS1-10-00591-015	GAM-A-020	AM-241	0.060668	0.091315	0.09137	0.152	0.076	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-23	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	GAM-A-020	AM-241	0.021632	0.080402	0.08041	0.138	0.069	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-14	TLS-SS-IA1-12 (2.0-2.5)03161C	ARS1-10-00591-022	GAM-A-020	AM-241	-0.00454	0.47827	0.47827	0.175	0.0875	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-10	TLS-SS-IA1-5 (1.0-1.5)03161C	ARS1-10-00591-017	GAM-A-020	AM-241	-0.01116	6.6986	6.6986	0.152	0.076	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-18	TLS-SB-IA1-12 (11.3-12.0)03161C	ARS1-10-00591-026	GAM-A-020	RA-226	28.259	2.933	3.2574	2.88	1.44	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-19	TLS-SB-IA1-12 (16.3-17.3)03161C	ARS1-10-00591-027	GAM-A-020	RA-226	1.8112	0.83662	0.84129	1.15	0.575	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-15	TLS-SB-IA1-12 (2.5-3.5)03161C	ARS1-10-00591-023	GAM-A-020	RA-226	14.039	2.0057	2.1197	2.07	1.035	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-16	TLS-SB-IA1-12 (6.5-7.5)03161C	ARS1-10-00591-024	GAM-A-020	RA-226	383.51	8.6226	20.626	5.59	2.795	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-17	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	GAM-A-020	RA-226	383.88	8.9299	21.194	5.69	2.845	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-12	TLS-SB-IA1-5 (14.6-15.6)03161C	ARS1-10-00591-020	GAM-A-020	RA-226	29.921	3.3188	3.6412	3.62	1.81	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-13	TLS-SB-IA1-5 (24.0-25.0)03161C	ARS1-10-00591-021	GAM-A-020	RA-226	2.4993	0.9106	0.91875	1.26	0.63	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-11	TLS-SB-IA1-5 (7.0-8.0)03161C	ARS1-10-00591-019	GAM-A-020	RA-226	457.31	9.5137	24.284	5.99	2.995	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-09	TLS-SB-IA3-D01 (10.4-11.4)03161C	ARS1-10-00591-016	GAM-A-020	RA-226	3.0205	1.4653	1.4727	1.71	0.855	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-06	TLS-SB-IA3-D01 (4.0-5.0)03161C	ARS1-10-00591-013	GAM-A-020	RA-226	4.343	1.9917	2.003	2.8	1.4	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-08	TLS-SB-IA3-D01 (9.0-10.0)03161C	ARS1-10-00591-015	GAM-A-020	RA-226	2.7775	1.2129	1.2204	1.61	0.805	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-23	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	GAM-A-020	RA-226	2.8784	1.4935	1.5004	1.72	0.86	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-14	TLS-SS-IA1-12 (2.0-2.5)03161C	ARS1-10-00591-022	GAM-A-020	RA-226	2.7887	1.424	1.4308	1.93	0.965	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-10	TLS-SS-IA1-5 (1.0-1.5)03161C	ARS1-10-00591-017	GAM-A-020	RA-226	0.6688	1.0827	1.0832	1.94	0.97	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-18	TLS-SB-IA1-12 (11.3-12.0)03161C	ARS1-10-00591-026	GAM-A-020	RA-228	3.7834	0.45406	0.51037	0.435	0.2175	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-19	TLS-SB-IA1-12 (16.3-17.3)03161C	ARS1-10-00591-027	GAM-A-020	RA-228	0.56655	0.14817	0.15215	0.129	0.0645	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-15	TLS-SB-IA1-12 (2.5-3.5)03161C	ARS1-10-00591-023	GAM-A-020	RA-228	1.2632	0.26149	0.27261	0.192	0.096	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-16	TLS-SB-IA1-12 (6.5-7.5)03161C	ARS1-10-00591-024	GAM-A-020	RA-228	0.78659	0.44034	0.44294	0.752	0.376	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-17	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	GAM-A-020	RA-228	0.9111	0.45311	0.45645	0.696	0.348	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-12	TLS-SB-IA1-5 (14.6-15.6)03161C	ARS1-10-00591-020	GAM-A-020	RA-228	4.002	0.5572	0.60756	0.502	0.251	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-13	TLS-SB-IA1-5 (24.0-25.0)03161C	ARS1-10-00591-021	GAM-A-020	RA-228	0.98055	0.16423	0.17479	0.204	0.102	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-11	TLS-SB-IA1-5 (7.0-8.0)03161C	ARS1-10-00591-019	GAM-A-020	RA-228	2.3617	0.56002	0.57827	0.77	0.385	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-09	TLS-SB-IA3-D01 (10.4-11.4)03161C	ARS1-10-00591-016	GAM-A-020	RA-228	1.0925	0.20342	0.21407	0.223	0.1115	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-06	TLS-SB-IA3-D01 (4.0-5.0)03161C	ARS1-10-00591-013	GAM-A-020	RA-228	2.5294	0.52419	0.54644	0.391	0.1955	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-08	TLS-SB-IA3-D01 (9.0-10.0)03161C	ARS1-10-00591-015	GAM-A-020	RA-228	0.79217	0.20522	0.21084	0.329	0.1645	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-23	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	GAM-A-020	RA-228	0.59758	0.24542	0.24817	0.351	0.1755	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-14	TLS-SS-IA1-12 (2.0-2.5)03161C	ARS1-10-00591-022	GAM-A-020	RA-228	0.71634	0.26805	0.27154	0.37	0.185	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-10	TLS-SS-IA1-5 (1.0-1.5)03161C	ARS1-10-00591-017	GAM-A-020	RA-228	0.58621	0.20986	0.21295	0.227	0.1135	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-18	TLS-SB-IA1-12 (11.3-12.0)03161C	ARS1-10-00591-026	GAM-A-020	U-234	24.998	2.2868	2.9317	3.39	1.695	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-19	TLS-SB-IA1-12 (16.3-17.3)03161C	ARS1-10-00591-027	GAM-A-020	U-234	1.1061	0.5653	0.5711	1.04	0.52	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-15	TLS-SB-IA1-12 (2.5-3.5)03161C	ARS1-10-00591-023	GAM-A-020	U-234	12.241	2.1859	2.3633	2.49	1.245	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-16	TLS-SB-IA1-12 (6.5-7.5)03161C	ARS1-10-00591-024	GAM-A-020	U-234	341.43	9.0267	27.214	7.64	3.82	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-17	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	GAM-A-020	U-234	322.47	8.4392	25.493	7.16	3.58	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-12	TLS-SB-IA1-5 (14.6-15.6)03161C	ARS1-10-00591-020	GAM-A-020	U-234	26.863	2.6595	3.3299	3.71	1.855	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-13	TLS-SB-IA1-5 (24.0-25.0)03161C	ARS1-10-00591-021	GAM-A-020	U-234	1.7128	0.71894	0.73039	1.24	0.62	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-11	TLS-SB-IA1-5 (7.0-8.0)03161C	ARS1-10-00591-019	GAM-A-020	U-234	462.91	10.594	36.385	8.89	4.445	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-09	TLS-SB-IA3-D01 (10.4-11.4)03161C	ARS1-10-00591-016	GAM-A-020	U-234	2.1711	0.72329	0.74063	1.49	0.745	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-06	TLS-SB-IA3-D01 (4.0-5.0)03161C	ARS1-10-00591-013	GAM-A-020	U-234	2.8488	1.3738	1.3904	2.48	1.24	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-08	TLS-SB-IA3-D01 (9.0-10.0)03161C	ARS1-10-00591-015	GAM-A-020	U-234	1.7108	0.88661	0.89546	1.65	0.825	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-23	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	GAM-A-020	U-234	1.766	0.67304	0.6854	1.36	0.68	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-14	TLS-SS-IA1-12 (2.0-2.5)03161C	ARS1-10-00591-022	GAM-A-020	U-234	1.7427	1.2208	1.2277	1.8	0.9	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-10	TLS-SS-IA1-5 (1.0-1.5)03161C	ARS1-10-00591-017	GAM-A-020	U-234	1.6062	0.81698	0.82544	1.51	0.755	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-18	TLS-SB-IA1-12 (11.3-12.0)03161C	ARS1-10-00591-026	GAM-A-020	U-235	2.0372	0.68246	0.69651	0.999	0.4995	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-19	TLS-SB-IA1-12 (16.3-17.3)03161C	ARS1-10-00591-027	GAM-A-020	U-235	0.10931	0.17294	0.1731	0.297	0.1485	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-15	TLS-SB-IA1-12 (2.5-3.5)03161C	ARS1-10-00591-023	GAM-A-020	U-235	0.71884	0.39841	0.40139	0.631	0.3155	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-16	TLS-SB-IA1-12 (6.5-7.5)03161C	ARS1-10-00591-024	GAM-A-020	U-235	25.275	1.6714	2.3961	1.65	0.825	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-17	TLS-SB-IA1-12 (6.5-7.5)031610D	ARS1-10-00591-025	GAM-A-020	U-235	25.8	1.7275	2.4676	1.79	0.895	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-12	TLS-SB-IA1-5 (14.6-15.6)03161C	ARS1-10-00591-020	GAM-A-020	U-235	0.9416	0.68908	0.69208	1.12	0.56	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-13	TLS-SB-IA1-5 (24.0-25.0)03161C	ARS1-10-00591-021	GAM-A-020	U-235	0.056623	0.25381	0.25384	0.438	0.219	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-11	TLS-SB-IA1-5 (7.0-8.0)03161C	ARS1-10-00591-019	GAM-A-020	U-235	29.426	1.8317	2.7111	1.76	0.88	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-09	TLS-SB-IA3-D01 (10.4-11.4)03161C	ARS1-10-00591-016	GAM-A-020	U-235	0.16141	0.27804	0.27825	0.473	0.2365	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-06	TLS-SB-IA3-D01 (4.0-5.0)03161C	ARS1-10-00591-013	GAM-A-020	U-235	0.37386	0.46364	0.46434	0.775	0.3875	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-08	TLS-SB-IA3-D01 (9.0-10.0)03161C	ARS1-10-00591-015	GAM-A-020	U-235	0.090924	0.27132	0.27139	0.469	0.2345	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-23	TLS-SB-IA6-13 (23.0-24.0)031610D	ARS1-10-00591-031	GAM-A-020	U-235	0.06621	0.30421	0.30424	0.523	0.2615	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-14	TLS-SS-IA1-12 (2.0-2.5)03161C	ARS1-10-00591-022	GAM-A-020	U-235	-0.00481	0.34256	0.34256	0.556	0.278	pCi	g	ARS1-B10-02178		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02178-10	TLS-SS-IA1-5 (1.0-1.5)03161C	ARS1-10-00591-017	GAM-A-020	U-235	0.12425	0.32471	0.32483	0.556	0.278	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-18	TLS-SB-IA1-12 (11.3-12.0)03161C	ARS1-10-00591-026	GAM-A-020	U-238	24.998	2.2868	2.9317	3.39	1.695	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-19	TLS-SB-IA1-12 (16.3-17.3)03161C	ARS1-10-00591-027	GAM-A-020	U-238	1.1061	0.5653	0.5711	1.04	0.52	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-15	TLS-SB-IA1-12 (2.5-3.5)03161C	ARS1-10-00591-023	GAM-A-020	U-238	12.241	2.1859	2.3633	2.49	1.245	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-16	TLS-SB-IA1-12 (6.5-7.5)03161C	ARS1-10-00591-024	GAM-A-020	U-238	341.43	9.0267	27.214	7.64	3.82	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-17	TLS-SB-IA1-12 (6.5-7.5)03161CD	ARS1-10-00591-025	GAM-A-020	U-238	322.47	8.4392	25.493	7.16	3.58	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-12	TLS-SB-IA1-5 (14.6-15.6)03161C	ARS1-10-00591-020	GAM-A-020	U-238	26.863	2.6595	3.3299	3.71	1.855	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-13	TLS-SB-IA1-5 (24.0-25.0)03161C	ARS1-10-00591-021	GAM-A-020	U-238	1.7128	0.71894	0.73039	1.24	0.62	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-11	TLS-SB-IA1-5 (7.0-8.0)03161C	ARS1-10-00591-019	GAM-A-020	U-238	462.91	10.594	36.385	8.89	4.445	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-09	TLS-SB-IA3-D01 (10.4-11.4)03161C	ARS1-10-00591-016	GAM-A-020	U-238	2.1711	0.72329	0.74063	1.49	0.745	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-06	TLS-SB-IA3-D01 (4.0-5.0)03161C	ARS1-10-00591-013	GAM-A-020	U-238	2.8488	1.3738	1.3904	2.48	1.24	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-08	TLS-SB-IA3-D01 (9.0-10.0)03161C	ARS1-10-00591-015	GAM-A-020	U-238	1.7108	0.88661	0.89546	1.65	0.825	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-23	TLS-SB-IA6-13 (23.0-24.0)031610C	ARS1-10-00591-031	GAM-A-020	U-238	1.766	0.67304	0.6854	1.36	0.68	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02178-14	TLS-SS-IA1-12 (2.0-2.5)03161C	ARS1-10-00591-022	GAM-A-020	U-238	1.7427	1.2208	1.2277	1.8	0.9	pCi	g	ARS1-B10-02178		1	U	U				
ARS1-B10-02178-10	TLS-SS-IA1-5 (1.0-1.5)03161C	ARS1-10-00591-017	GAM-A-020	U-238	1.6062	0.81698	0.82544	1.51	0.755	pCi	g	ARS1-B10-02178		1						
ARS1-B10-02191-13	TLS-SB-IA1-B1 (1.2-2.2)03261C	ARS1-10-00674-002	GAM-A-020	AM-241	0.002593	0.1131	0.1131	0.193	0.0965	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-19	TLS-SB-IA1-B5 (15.0-16.0)03261C	ARS1-10-00674-008	GAM-A-020	AM-241	0.017134	0.13667	0.13668	0.231	0.1155	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-21	TLS-SB-IA1-B5 (24.0-25.0)03261C	ARS1-10-00674-010	GAM-A-020	AM-241	-0.03241	0.12711	0.12712	0.164	0.082	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-15	TLS-SB-IA1-B1 (14.0-15.0)03261C	ARS1-10-00674-004	GAM-A-020	AM-241	0	0.21462	0.21462	0.361	0.1805	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-16	TLS-SB-IA1-B1 (16.3-17.3)03261C	ARS1-10-00674-005	GAM-A-020	AM-241	-0.04299	0.093858	0.093885	0.133	0.0665	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-14	TLS-SB-IA1-B1 (7.0-8.0)03261C	ARS1-10-00674-003	GAM-A-020	AM-241	-0.00679	0.84124	0.84124	0.273	0.1365	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-22	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	GAM-A-020	AM-241	-0.00903	0.1366	0.1366	0.145	0.0725	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-18	TLS-SB-IA1-B5 (5.0-6.0)03261C	ARS1-10-00674-007	GAM-A-020	AM-241	0.061086	0.083347	0.083408	0.138	0.069	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-12	TLS-SS-IA1-B1 (0.7-1.2)03261C	ARS1-10-00674-001	GAM-A-020	AM-241	0.01186	0.14626	0.14626	0.251	0.1255	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-17	TLS-SS-IA1-B5 (1.3-1.8)03261C	ARS1-10-00674-006	GAM-A-020	AM-241	-0.0017	0.24877	0.24877	0.113	0.0565	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-23	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	GAM-A-020	AM-241	-0.00801	0.96294	0.96294	0.194	0.097	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-13	TLS-SB-IA1-B1 (1.2-2.2)03261C	ARS1-10-00674-002	GAM-A-020	RA-226	5.6421	1.7211	1.7441	2.15	1.075	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-19	TLS-SB-IA1-B5 (15.0-16.0)03261C	ARS1-10-00674-008	GAM-A-020	RA-226	12.873	1.8941	2.0011	2	1	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-21	TLS-SB-IA1-B5 (24.0-25.0)03261C	ARS1-10-00674-010	GAM-A-020	RA-226	3.5933	1.2575	1.2697	1.45	0.725	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-15	TLS-SB-IA1-B1 (14.0-15.0)03261C	ARS1-10-00674-004	GAM-A-020	RA-226	56.377	3.2624	4.2697	2.75	1.375	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-16	TLS-SB-IA1-B1 (16.3-17.3)03261C	ARS1-10-00674-005	GAM-A-020	RA-226	1.8302	1.1062	1.1098	1.32	0.66	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-14	TLS-SB-IA1-B1 (7.0-8.0)03261C	ARS1-10-00674-003	GAM-A-020	RA-226	23.851	2.4886	2.7611	2.26	1.13	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-22	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	GAM-A-020	RA-226	1.5832	1.0973	1.1002	1.6	0.8	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-18	TLS-SB-IA1-B5 (5.0-6.0)03261C	ARS1-10-00674-007	GAM-A-020	RA-226	3.8499	1.3598	1.3728	1.75	0.875	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-12	TLS-SS-IA1-B1 (0.7-1.2)03261C	ARS1-10-00674-001	GAM-A-020	RA-226	8.0768	2.0672	2.1045	2.4	1.2	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-17	TLS-SS-IA1-B5 (1.3-1.8)03261C	ARS1-10-00674-006	GAM-A-020	RA-226	2.3107	1.4859	1.4904	1.92	0.96	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-23	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	GAM-A-020	RA-226	2.3158	1.3837	1.3883	2.37	1.185	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-13	TLS-SB-IA1-B1 (1.2-2.2)03261C	ARS1-10-00674-002	GAM-A-020	RA-228	0.662	0.25447	0.2576	0.346	0.173	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-19	TLS-SB-IA1-B5 (15.0-16.0)03261C	ARS1-10-00674-008	GAM-A-020	RA-228	1.5955	0.27456	0.29162	0.228	0.114	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-21	TLS-SB-IA1-B5 (24.0-25.0)03261C	ARS1-10-00674-010	GAM-A-020	RA-228	0.76862	0.21019	0.21536	0.2	0.1	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-15	TLS-SB-IA1-B1 (14.0-15.0)03261C	ARS1-10-00674-004	GAM-A-020	RA-228	1.4706	0.31367	0.32626	0.28	0.14	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-16	TLS-SB-IA1-B1 (16.3-17.3)03261C	ARS1-10-00674-005	GAM-A-020	RA-228	0.652	0.12629	0.13241	0.2	0.1	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-14	TLS-SB-IA1-B1 (7.0-8.0)03261C	ARS1-10-00674-003	GAM-A-020	RA-228	1.7893	0.34268	0.35996	0.262	0.131	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-22	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	GAM-A-020	RA-228	0.93616	0.21829	0.22552	0.168	0.084	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-18	TLS-SB-IA1-B5 (5.0-6.0)03261C	ARS1-10-00674-007	GAM-A-020	RA-228	0.79359	0.19694	0.20281	0.293	0.1465	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-12	TLS-SS-IA1-B1 (0.7-1.2)03261C	ARS1-10-00674-001	GAM-A-020	RA-228	1.7564	0.31532	0.33304	0.352	0.176	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-17	TLS-SS-IA1-B5 (1.3-1.8)03261C	ARS1-10-00674-006	GAM-A-020	RA-228	0.1762	0.18275	0.18306	0.304	0.152	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-23	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	GAM-A-020	RA-228	0.65622	0.21617	0.21985	0.377	0.1885	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-19	TLS-SB-IA1-B5 (15.0-16.0)03261C	ARS1-10-00674-008	GAM-A-020	U-234	11.214	1.7283	1.9142	2.05	1.025	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-21	TLS-SB-IA1-B5 (24.0-25.0)03261C	ARS1-10-00674-010	GAM-A-020	U-234	1.45	0.76584	0.77319	1.38	0.69	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-13	TLS-SB-IA1-B1 (1.2-2.2)03261C	ARS1-10-00674-002	GAM-A-020	U-234	3.2518	1.0592	1.0866	2	1	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-15	TLS-SB-IA1-B1 (14.0-15.0)03261C	ARS1-10-00674-004	GAM-A-020	U-234	52.41	3.1334	5.0348	2.89	1.445	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-16	TLS-SB-IA1-B1 (16.3-17.3)03261C	ARS1-10-00674-005	GAM-A-020	U-234	1.2579	0.51088	0.51915	1.16	0.58	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-14	TLS-SB-IA1-B1 (7.0-8.0)03261C	ARS1-10-00674-003	GAM-A-020	U-234	18.542	1.759	2.2239	2.58	1.29	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-22	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	GAM-A-020	U-234	0.76797	0.98095	0.98262	1.42	0.71	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-18	TLS-SB-IA1-B5 (5.0-6.0)03261C	ARS1-10-00674-007	GAM-A-020	U-234	1.1681	0.94076	0.94465	1.52	0.76	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-12	TLS-SS-IA1-B1 (0.7-1.2)03261C	ARS1-10-00674-001	GAM-A-020	U-234	4.5963	1.463	1.5014	2.51	1.255	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-17	TLS-SS-IA1-B5 (1.3-1.8)03261C	ARS1-10-00674-006	GAM-A-020	U-234	1.2484	1.1336	1.1374	1.65	0.825	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-23	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	GAM-A-020	U-234	2.2109	1.1907	1.2017	2.18	1.09	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-19	TLS-SB-IA1-B5 (15.0-16.0)03261C	ARS1-10-00674-008	GAM-A-020	U-235	0.65206	0.4122	0.4146	0.658	0.329	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-21	TLS-SB-IA1-B5 (24.0-25.0)03261C	ARS1-10-00674-010	GAM-A-020	U-235	0.053045	0.2122	0.21223	0.373	0.1865	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-13	TLS-SB-IA1-B1 (1.2-2.2)03261C	ARS1-10-00674-002	GAM-A-020	U-235	0.27662	0.36902	0.36951	0.621	0.3105	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-15	TLS-SB-IA1-B1 (14.0-15.0)03261C	ARS1-10-00674-004	GAM-A-020	U-235	4.3472	0.71662	0.77508	0.807	0.4035	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-16	TLS-SB-IA1-B1 (16.3-17.3)03261C	ARS1-10-00674-005	GAM-A-020	U-235	0.012991	0.21124	0.21124	0.369	0.1845	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-14	TLS-SB-IA1-B1 (7.0-8.0)03261C	ARS1-10-00674-003	GAM-A-020	U-235	1.449	0.51435	0.52379	0.761	0.3805	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-22	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	GAM-A-020	U-235	-0.09022	6.4436	6.4436	0.449	0.2245	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-18	TLS-SB-IA1-B5 (5.0-6.0)03261C	ARS1-10-00674-007	GAM-A-020	U-235	0.14259	0.2685	0.26867	0.46	0.23	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-12	TLS-SS-IA1-B1 (0.7-1.2)03261C	ARS1-10-00674-001	GAM-A-020	U-235	0.47946	0.4209	0.42215	0.693	0.3465	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-17	TLS-SS-IA1-B5 (1.3-1.8)03261C	ARS1-10-00674-006	GAM-A-020	U-235	0.069843	0.28831	0.28835	0.504	0.252	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-23	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	GAM-A-020	U-235	0.24512	0.30844	0.30889	0.524	0.262	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-19	TLS-SB-IA1-B5 (15.0-16.0)03261C	ARS1-10-00674-008	GAM-A-020	U-238	11.214	1.7283	1.9142	2.05	1.025	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-13	TLS-SB-IA1-B1 (1.2-2.2)03261C	ARS1-10-00674-002	GAM-A-020	U-238	3.2518	1.0592	1.0866	2	1	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-15	TLS-SB-IA1-B1 (14.0-15.0)03261C	ARS1-10-00674-004	GAM-A-020	U-238	52.41	3.1334	5.0348	2.89	1.445	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-16	TLS-SB-IA1-B1 (16.3-17.3)03261C	ARS1-10-00674-005	GAM-A-020	U-238	1.2579	0.51088	0.51915	1.16	0.58	pCi	g	ARS1-B10-02191		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02191-14	TLS-SB-IA1-B1 (7.0-8.0)03261C	ARS1-10-00674-003	GAM-A-020	U-238	18.542	1.759	2.2239	2.58	1.29	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-21	TLS-SB-IA1-B5 (24.0-25.0)03261C	ARS1-10-00674-010	GAM-A-020	U-238	1.45	0.76584	0.77319	1.38	0.69	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-22	TLS-SB-IA1-B5 (25.0-26.0)03261C	ARS1-10-00674-011	GAM-A-020	U-238	0.76797	0.98095	0.98262	1.42	0.71	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-18	TLS-SB-IA1-B5 (5.0-6.0)03261C	ARS1-10-00674-007	GAM-A-020	U-238	1.1681	0.94076	0.94465	1.52	0.76	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-12	TLS-SS-IA1-B1 (0.7-1.2)03261C	ARS1-10-00674-001	GAM-A-020	U-238	4.5963	1.463	1.5014	2.51	1.255	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02191-17	TLS-SS-IA1-B5 (1.3-1.8)03261C	ARS1-10-00674-006	GAM-A-020	U-238	1.2484	1.1336	1.1374	1.65	0.825	pCi	g	ARS1-B10-02191		1	U	U				
ARS1-B10-02191-23	TLS-SS-IA1-B8 (1.5-2.0)03261C	ARS1-10-00674-012	GAM-A-020	U-238	2.2109	1.1907	1.2017	2.18	1.09	pCi	g	ARS1-B10-02191		1						
ARS1-B10-02201-20	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	GAM-A-020	AM-241	-0.05378	0.1588	0.15883	0.218	0.109	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-21	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	GAM-A-020	AM-241	-0.05398	0.16173	0.16176	0.229	0.1145	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-22	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	GAM-A-020	AM-241	-0.00546	0.94884	0.94884	0.26	0.13	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-23	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	GAM-A-020	AM-241	0.004427	0.087847	0.087847	0.15	0.075	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-16	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	GAM-A-020	AM-241	0.009854	0.16788	0.16788	0.285	0.1425	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-17	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	GAM-A-020	AM-241	0.036885	0.10305	0.10307	0.175	0.0875	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-18	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	GAM-A-020	AM-241	0.030774	0.069343	0.069362	0.117	0.0585	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-15	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	GAM-A-020	AM-241	-0.06636	0.11125	0.1113	0.161	0.0805	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-06	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	GAM-A-020	AM-241	-0.00669	5.1308	5.1308	0.122	0.061	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-07	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	GAM-A-020	AM-241	0.055072	0.075944	0.075998	0.126	0.063	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-04	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	GAM-A-020	AM-241	0.005551	0.05719	0.057191	0.1	0.05	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-05	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	GAM-A-020	AM-241	-0.0167	0.41388	0.41388	0.308	0.154	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-09	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	GAM-A-020	AM-241	-0.00244	0.31775	0.31775	0.192	0.096	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-11	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	GAM-A-020	AM-241	-0.00543	4.3909	4.3909	0.222	0.111	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-12	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	GAM-A-020	AM-241	-0.04956	0.18728	0.1873	0.214	0.107	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-13	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	GAM-A-020	AM-241	-0.01992	0.10102	0.10103	0.138	0.069	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-10	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	GAM-A-020	AM-241	0.02177	0.10779	0.1078	0.183	0.0915	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-19	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	GAM-A-020	AM-241	0.041842	0.058261	0.058305	0.0966	0.0483	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-14	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	GAM-A-020	AM-241	0.060061	0.087885	0.087945	0.146	0.073	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-08	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	GAM-A-020	AM-241	0.028583	0.12585	0.12586	0.216	0.108	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-20	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	GAM-A-020	RA-226	4.4316	1.4751	1.4909	2.32	1.16	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-21	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	GAM-A-020	RA-226	21.207	1.9256	2.1866	1.67	0.835	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-22	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	GAM-A-020	RA-226	39.104	2.3414	3.0541	1.67	0.835	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-23	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	GAM-A-020	RA-226	2.6065	1.4497	1.4556	1.81	0.905	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-16	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	GAM-A-020	RA-226	9.1391	2.2483	2.2922	2.51	1.255	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-17	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	GAM-A-020	RA-226	4.8481	1.4118	1.4326	1.73	0.865	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-18	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	GAM-A-020	RA-226	3.0136	1.0736	1.0842	1.45	0.725	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-15	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	GAM-A-020	RA-226	2.5192	1.3065	1.3123	1.73	0.865	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-06	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	GAM-A-020	RA-226	0.97724	0.94123	0.9425	1.59	0.795	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-07	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	GAM-A-020	RA-226	2.8652	1.2132	1.2213	1.46	0.73	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-04	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	GAM-A-020	RA-226	1.9469	0.97085	0.97575	1.34	0.67	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-05	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	GAM-A-020	RA-226	6.1589	2.1177	2.139	2.52	1.26	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-09	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	GAM-A-020	RA-226	9.7242	1.5998	1.6688	1.71	0.855	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-11	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	GAM-A-020	RA-226	6.0605	1.5707	1.5984	2.36	1.18	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-12	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	GAM-A-020	RA-226	7.6028	1.7891	1.8293	2.16	1.08	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-13	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	GAM-A-020	RA-226	3.0756	1.3676	1.3763	1.67	0.835	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-10	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	GAM-A-020	RA-226	4.5697	1.9336	1.9471	2.19	1.095	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-19	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	GAM-A-020	RA-226	0.61135	1.1295	1.1299	1.56	0.78	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-14	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	GAM-A-020	RA-226	1.5049	1.2978	1.2999	1.81	0.905	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-08	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	GAM-A-020	RA-226	5.2651	2.1424	2.1586	2.46	1.23	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-20	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	GAM-A-020	RA-228	1.9017	0.39406	0.41079	0.299	0.1495	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-21	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	GAM-A-020	RA-228	0.9716	0.24333	0.25045	0.192	0.096	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-22	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	GAM-A-020	RA-228	0.92182	0.18804	0.19643	0.234	0.117	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-23	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	GAM-A-020	RA-228	0.76956	0.19795	0.20335	0.158	0.079	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-16	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	GAM-A-020	RA-228	3.3796	0.38876	0.44008	0.283	0.1415	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-17	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	GAM-A-020	RA-228	0.8874	0.24371	0.24977	0.335	0.1675	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-18	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	GAM-A-020	RA-228	0.72706	0.1683	0.17395	0.211	0.1055	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-15	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	GAM-A-020	RA-228	0.91344	0.22668	0.23343	0.25	0.125	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-06	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	GAM-A-020	RA-228	0.71376	0.14463	0.15117	0.145	0.0725	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-07	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	GAM-A-020	RA-228	0.96085	0.19641	0.20498	0.144	0.072	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-04	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	GAM-A-020	RA-228	0.32893	0.15089	0.15225	0.207	0.1035	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-05	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	GAM-A-020	RA-228	3.046	0.33105	0.37966	0.272	0.136	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-09	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	GAM-A-020	RA-228	1.1969	0.20225	0.21504	0.137	0.0685	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-11	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	GAM-A-020	RA-228	1.6931	0.23632	0.25792	0.234	0.117	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-12	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	GAM-A-020	RA-228	1.8628	0.33352	0.35271	0.205	0.1025	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-13	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	GAM-A-020	RA-228	0.59653	0.17932	0.18291	0.228	0.114	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-10	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	GAM-A-020	RA-228	1.3163	0.26491	0.27704	0.195	0.0975	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-19	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	GAM-A-020	RA-228	0.45811	0.16436	0.16672	0.263	0.1315	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-14	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	GAM-A-020	RA-228	0.87398	0.29271	0.29753	0.291	0.1455	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-08	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	GAM-A-020	RA-228	0.83844	0.30859	0.31288	0.444	0.222	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-20	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	GAM-A-020	U-234	4.7529	1.3149	1.3604	2.19	1.095	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-21	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	GAM-A-020	U-234	18.265	1.5039	2.0145	1.9	0.95	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-22	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	GAM-A-020	U-234	39.388	2.1192	3.5841	2.24	1.12	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-23	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	GAM-A-020	U-234	2.7621	0.70043	0.7301	1.49	0.745	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-16	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	GAM-A-020	U-234	6.6705	1.3373	1.4241	2.63	1.315	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-17	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	GAM-A-020	U-234	2.4235	0.90602	0.92331	1.67	0.835	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-18	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	GAM-A-020	U-234	2.3358	0.70185	0.72316	1.38	0.69	pCi	g	ARS1-B10-02201		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02201-15	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	GAM-A-020	U-234	1.2872	0.93758	0.94232	1.78	0.89	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-06	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	GAM-A-020	U-234	1.6107	0.56736	0.57954	1.11	0.555	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-07	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	GAM-A-020	U-234	1.2376	0.61658	0.62323	1.19	0.595	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-04	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	GAM-A-020	U-234	1.1349	0.606	0.6117	1.09	0.545	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-05	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	GAM-A-020	U-234	4.255	1.3602	1.3956	2.53	1.265	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-09	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	GAM-A-020	U-234	6.0762	1.0278	1.1204	1.72	0.86	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-11	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	GAM-A-020	U-234	5.5117	1.3549	1.414	2.25	1.125	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-12	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	GAM-A-020	U-234	6.0303	1.2131	1.2913	1.88	0.94	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-13	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	GAM-A-020	U-234	1.9535	0.78326	0.7967	1.48	0.74	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-10	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	GAM-A-020	U-234	3.8188	0.93081	0.97208	1.59	0.795	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-19	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	GAM-A-020	U-234	1.0579	0.56771	0.57326	0.997	0.4985	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-14	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	GAM-A-020	U-234	0.95537	1.0186	1.0211	1.46	0.73	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-08	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	GAM-A-020	U-234	2.9302	0.94358	0.96777	1.97	0.985	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-20	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	GAM-A-020	U-235	0.34797	0.41957	0.42024	0.699	0.3495	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-21	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	GAM-A-020	U-235	1.5968	0.42581	0.4394	0.499	0.2495	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-22	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	GAM-A-020	U-235	2.3357	0.45383	0.48106	0.505	0.2525	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-23	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	GAM-A-020	U-235	0.13257	0.25924	0.2594	0.445	0.2225	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-16	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	GAM-A-020	U-235	0.32505	0.47864	0.47915	0.802	0.401	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-17	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	GAM-A-020	U-235	0.19723	0.32843	0.32871	0.552	0.276	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-18	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	GAM-A-020	U-235	0.21037	0.24175	0.24218	0.405	0.2025	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-15	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	GAM-A-020	U-235	-0.09298	3.7193	3.7193	0.593	0.2965	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-06	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	GAM-A-020	U-235	0.1644	0.24248	0.24274	0.405	0.2025	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-07	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	GAM-A-020	U-235	0.071279	0.25877	0.25882	0.445	0.2225	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-04	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	GAM-A-020	U-235	0.16172	0.23238	0.23264	0.39	0.195	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-05	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	GAM-A-020	U-235	0.2012	0.45973	0.45994	0.781	0.3905	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-09	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	GAM-A-020	U-235	0.42934	0.34049	0.34174	0.555	0.2775	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-11	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	GAM-A-020	U-235	0.38726	0.36293	0.36388	0.6	0.3	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-12	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	GAM-A-020	U-235	0.22985	0.39405	0.39436	0.66	0.33	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-13	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	GAM-A-020	U-235	0.21547	0.25294	0.25336	0.423	0.2115	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-10	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	GAM-A-020	U-235	0.19709	0.33543	0.3357	0.562	0.281	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-19	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	GAM-A-020	U-235	0.10446	0.20114	0.20127	0.347	0.1735	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-14	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	GAM-A-020	U-235	0.10082	0.30498	0.30506	0.524	0.262	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-08	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	GAM-A-020	U-235	0.23691	0.41599	0.4163	0.703	0.3515	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-20	TLS-SB-IA1-B11 (5.5-6.5)03261C	ARS1-10-00674-029	GAM-A-020	U-238	4.7529	1.3149	1.3604	2.19	1.095	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-21	TLS-SB-IA1-B11 (23.0-24.0)03261C	ARS1-10-00674-030	GAM-A-020	U-238	18.265	1.5039	2.0145	1.9	0.95	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-22	TLS-SB-IA1-B11 (23.0-24.0)032610D	ARS1-10-00674-031	GAM-A-020	U-238	39.388	2.1192	3.5841	2.24	1.12	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-23	TLS-SB-IA1-B11 (29.1-30.1)03261C	ARS1-10-00674-032	GAM-A-020	U-238	2.7621	0.70043	0.7301	1.49	0.745	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-16	TLS-SB-IA1-B6 (15.0-16.0)03261C	ARS1-10-00674-025	GAM-A-020	U-238	6.6705	1.3373	1.4241	2.63	1.315	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-17	TLS-SB-IA1-B6 (27.0-28.0)03261C	ARS1-10-00674-026	GAM-A-020	U-238	2.4235	0.90602	0.92331	1.67	0.835	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-18	TLS-SB-IA1-B6 (29.0-30.0)03261C	ARS1-10-00674-027	GAM-A-020	U-238	2.3358	0.70185	0.72316	1.38	0.69	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-15	TLS-SB-IA1-B6 (6.1-7.1)03261C	ARS1-10-00674-024	GAM-A-020	U-238	1.2872	0.93758	0.94232	1.78	0.89	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-06	TLS-SB-IA1-B8 (24.0-25.0)03261C	ARS1-10-00674-015	GAM-A-020	U-238	1.6107	0.56736	0.57954	1.11	0.555	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-07	TLS-SB-IA1-B8 (27.0-28.0)03261C	ARS1-10-00674-016	GAM-A-020	U-238	1.2376	0.61658	0.62323	1.19	0.595	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-04	TLS-SB-IA1-B8 (3.0-4.0)03261C	ARS1-10-00674-013	GAM-A-020	U-238	1.1349	0.606	0.6117	1.09	0.545	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-05	TLS-SB-IA1-B8 (7.0-8.0)03261C	ARS1-10-00674-014	GAM-A-020	U-238	4.255	1.3602	1.3956	2.53	1.265	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-09	TLS-SB-IA1-B9 (1.7-2.7)03261C	ARS1-10-00674-018	GAM-A-020	U-238	6.0762	1.0278	1.1204	1.72	0.86	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-11	TLS-SB-IA1-B9 (17.6-18.6)03261C	ARS1-10-00674-020	GAM-A-020	U-238	5.5117	1.3549	1.414	2.25	1.125	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-12	TLS-SB-IA1-B9 (17.6-18.6)032610D	ARS1-10-00674-021	GAM-A-020	U-238	6.0303	1.2131	1.2913	1.88	0.94	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-13	TLS-SB-IA1-B9 (21.0-22.0)03261C	ARS1-10-00674-022	GAM-A-020	U-238	1.9535	0.78326	0.7967	1.48	0.74	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-10	TLS-SB-IA1-B9 (6.0-7.0)03261C	ARS1-10-00674-019	GAM-A-020	U-238	3.8188	0.93081	0.97208	1.59	0.795	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-19	TLS-SS-IA1-B11 (1.8-2.3)03261C	ARS1-10-00674-028	GAM-A-020	U-238	1.0579	0.56771	0.57326	0.997	0.4985	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02201-14	TLS-SS-IA1-B6 (1.1-1.6)03261C	ARS1-10-00674-023	GAM-A-020	U-238	0.95537	1.0186	1.0211	1.46	0.73	pCi	g	ARS1-B10-02201		1	U	U				
ARS1-B10-02201-08	TLS-SS-IA1-B9 (1.2-1.7)03261C	ARS1-10-00674-017	GAM-A-020	U-238	2.9302	0.94358	0.96777	1.97	0.985	pCi	g	ARS1-B10-02201		1						
ARS1-B10-02226-14	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	GAM-A-020	AM-241	0.009969	0.068689	0.068691	0.118	0.059	pCi	g	ARS1-B10-02226		1	U	U				
ARS1-B10-02226-14	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	GAM-A-020	RA-226	2.6648	0.9565	0.96532	1.53	0.765	pCi	g	ARS1-B10-02226		1						
ARS1-B10-02226-14	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	GAM-A-020	RA-228	0.76729	0.16762	0.17404	0.186	0.093	pCi	g	ARS1-B10-02226		1						
ARS1-B10-02226-14	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	GAM-A-020	U-234	1.3311	0.70559	0.71232	1.45	0.725	pCi	g	ARS1-B10-02226		1	U	U				
ARS1-B10-02226-14	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	GAM-A-020	U-235	0.099028	0.24846	0.24855	0.427	0.2135	pCi	g	ARS1-B10-02226		1	U	U				
ARS1-B10-02226-14	TLS-SB-IA1-B11 (30.1-31.1)03261C	ARS1-10-00674-033	GAM-A-020	U-238	1.3311	0.70559	0.71232	1.45	0.725	pCi	g	ARS1-B10-02226		1	U	U				
ARS1-B10-02235-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	GAM-A-020	AM-241	0.005239	0.072859	0.07286	0.125	0.0625	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	GAM-A-020	AM-241	-0.0218	0.91966	0.91966	0.449	0.2245	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	GAM-A-020	AM-241	0.1719	0.21922	0.21941	0.362	0.181	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	GAM-A-020	AM-241	0.059749	0.18686	0.18688	0.314	0.157	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	GAM-A-020	AM-241	0.063677	0.14374	0.14378	0.24	0.12	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	GAM-A-020	AM-241	-0.08981	0.2244	0.22445	0.321	0.1605	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	GAM-A-020	AM-241	0.014888	0.10668	0.10669	0.182	0.091	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	GAM-A-020	AM-241	-0.00616	3.3116	3.3116	0.232	0.116	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	GAM-A-020	AM-241	0.02437	0.084923	0.084932	0.144	0.072	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	GAM-A-020	AM-241	0	0.10486	0.10486	0.179	0.0895	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	GAM-A-020	AM-241	0.040053	0.13815	0.13817	0.233	0.1165	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	GAM-A-020	AM-241	0.05251	0.090958	0.091002	0.152	0.076	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	GAM-A-020	AM-241	0.051755	0.091643	0.091683	0.154	0.077	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	GAM-A-020	AM-241	-0.02489	0.11958	0.11959	0.141	0.0705	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	GAM-A-020	RA-226	2.1997	1.0316	1.0372	1.29	0.645	pCi	g	ARS1-B10-02235		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02235-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	GAM-A-020	RA-226	76.966	4.3935	5.8481	3.35	1.675	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	GAM-A-020	RA-226	42.638	3.6406	4.2203	3.49	1.745	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	GAM-A-020	RA-226	13.506	2.3129	2.4052	2.47	1.235	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	GAM-A-020	RA-226	6.6346	2.3016	2.3254	2.71	1.355	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	GAM-A-020	RA-226	7.9908	2.3573	2.3895	2.8	1.4	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	GAM-A-020	RA-226	4.9857	1.9993	2.0149	2.26	1.13	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	GAM-A-020	RA-226	4.036	2.103	2.1123	2.57	1.285	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	GAM-A-020	RA-226	1.7348	1.1855	1.1886	1.57	0.785	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	GAM-A-020	RA-226	5.3292	1.4057	1.4296	1.7	0.85	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	GAM-A-020	RA-226	5.8211	1.8519	1.8748	2.29	1.145	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	GAM-A-020	RA-226	1.8423	1.2815	1.2847	2.19	1.095	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	GAM-A-020	RA-226	2.0779	1.2827	1.2867	1.89	0.945	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	GAM-A-020	RA-226	2.8387	1.1155	1.1241	1.39	0.695	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	GAM-A-020	RA-228	3.0336	0.42996	0.46812	0.38	0.19	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	GAM-A-020	RA-228	0.79587	0.14626	0.15411	0.165	0.0825	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	GAM-A-020	RA-228	2.6991	0.43497	0.46566	0.418	0.209	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	GAM-A-020	RA-228	2.1597	0.37845	0.40038	0.347	0.1735	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	GAM-A-020	RA-228	2.5302	0.32837	0.36231	0.316	0.158	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	GAM-A-020	RA-228	3.4222	0.41648	0.4659	0.448	0.224	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	GAM-A-020	RA-228	1.5964	0.27927	0.29607	0.35	0.175	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	GAM-A-020	RA-228	2.3031	0.30253	0.33358	0.18	0.09	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	GAM-A-020	RA-228	0.94717	0.18771	0.19641	0.106	0.053	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	GAM-A-020	RA-228	1.5528	0.2601	0.27683	0.223	0.1115	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	GAM-A-020	RA-228	2.0362	0.30286	0.3278	0.307	0.1535	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	GAM-A-020	RA-228	0.62291	0.20695	0.21041	0.373	0.1865	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	GAM-A-020	RA-228	1.2501	0.272	0.28249	0.252	0.126	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	GAM-A-020	RA-228	0.82795	0.15077	0.15901	0.121	0.0605	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	GAM-A-020	U-234	9.8105	1.9661	2.0999	3.05	1.525	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	GAM-A-020	U-234	1.3238	0.60845	0.61616	1.06	0.53	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	GAM-A-020	U-234	68.121	3.4155	6.0544	4.4	2.2	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	GAM-A-020	U-234	47.677	2.9593	4.6267	3.84	1.92	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	GAM-A-020	U-234	5.2604	1.3479	1.4039	2.37	1.185	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	GAM-A-020	U-234	7.2721	1.6562	1.7401	2.88	1.44	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	GAM-A-020	U-234	3.36	1.0901	1.1176	1.87	0.935	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	GAM-A-020	U-234	3.9452	1.4803	1.5084	1.97	0.985	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	GAM-A-020	U-234	1.6123	1.3312	1.3365	1.67	0.835	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	GAM-A-020	U-234	2.6362	0.97214	0.99215	1.61	0.805	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	GAM-A-020	U-234	3.9238	1.187	1.2214	2.36	1.18	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	GAM-A-020	U-234	2.7796	0.9402	0.96315	1.56	0.78	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	GAM-A-020	U-234	1.6652	0.902	0.91024	1.74	0.87	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	GAM-A-020	U-234	1.3543	0.7624	0.76885	1.32	0.66	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	GAM-A-020	U-235	0.5358	0.59494	0.59605	0.983	0.4915	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	GAM-A-020	U-235	0.048903	0.22843	0.22845	0.396	0.198	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	GAM-A-020	U-235	4.3216	0.81667	0.86839	0.911	0.4555	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	GAM-A-020	U-235	4.427	0.87415	0.92496	0.785	0.3925	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	GAM-A-020	U-235	0.46921	0.42426	0.42547	0.698	0.349	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	GAM-A-020	U-235	0.39851	0.50968	0.5104	0.851	0.4255	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	GAM-A-020	U-235	0.29899	0.3829	0.38345	0.635	0.3175	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	GAM-A-020	U-235	0.13883	0.39543	0.39554	0.681	0.3405	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	GAM-A-020	U-235	0.11271	0.23021	0.23034	0.397	0.1985	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	GAM-A-020	U-235	0.13956	0.34006	0.34019	0.578	0.289	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	GAM-A-020	U-235	0.31652	0.43934	0.43987	0.731	0.3655	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	GAM-A-020	U-235	0.11128	0.34045	0.34054	0.588	0.294	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	GAM-A-020	U-235	0.19546	0.30978	0.31006	0.527	0.2635	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	GAM-A-020	U-235	0.11672	0.23906	0.23919	0.411	0.2055	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-15	TLS-SB-IA1-B10 (15.0-16.0)03291C	ARS1-10-00690-009	GAM-A-020	U-238	9.8105	1.9661	2.0999	3.05	1.525	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-16	TLS-SB-IA1-B10 (25.1-26.1)03291C	ARS1-10-00690-010	GAM-A-020	U-238	1.3238	0.60845	0.61616	1.06	0.53	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-13	TLS-SB-IA1-B10 (3.0-4.0)03291C	ARS1-10-00690-007	GAM-A-020	U-238	68.121	3.4155	6.0544	4.4	2.2	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-14	TLS-SB-IA1-B10 (6.6-7.6)03291C	ARS1-10-00690-008	GAM-A-020	U-238	47.677	2.9593	4.6267	3.84	1.92	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-19	TLS-SB-IA1-B15 (10.0-11.0)03291C	ARS1-10-00690-013	GAM-A-020	U-238	5.2604	1.3479	1.4039	2.37	1.185	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-20	TLS-SB-IA1-B15 (15.0-16.0)03291C	ARS1-10-00690-014	GAM-A-020	U-238	7.2721	1.6562	1.7401	2.88	1.44	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-18	TLS-SB-IA1-B15 (6.7-7.7)03291C	ARS1-10-00690-012	GAM-A-020	U-238	3.36	1.0901	1.1176	1.87	0.935	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-10	TLS-SB-IA1-B7 (13.6-14.6)03291C	ARS1-10-00690-004	GAM-A-020	U-238	3.9452	1.4803	1.5084	1.97	0.985	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-11	TLS-SB-IA1-B7 (26.5-27.5)03291C	ARS1-10-00690-005	GAM-A-020	U-238	1.6123	1.3312	1.3365	1.67	0.835	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-08	TLS-SB-IA1-B7 (6.0-7.0)03291C	ARS1-10-00690-002	GAM-A-020	U-238	2.6362	0.97214	0.99215	1.61	0.805	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-09	TLS-SB-IA1-B7 (7.0-8.0)03291C	ARS1-10-00690-003	GAM-A-020	U-238	3.9238	1.187	1.2214	2.36	1.18	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-12	TLS-SS-IA1-B10 (1.0-1.5)03291C	ARS1-10-00690-006	GAM-A-020	U-238	2.7796	0.9402	0.96315	1.56	0.78	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02235-17	TLS-SS-IA1-B15 (1.0-1.5)03291C	ARS1-10-00690-011	GAM-A-020	U-238	1.6652	0.902	0.91024	1.74	0.87	pCi	g	ARS1-B10-02235		1	U	U				
ARS1-B10-02235-07	TLS-SS-IA1-B7 (0.8-1.3)03291C	ARS1-10-00690-001	GAM-A-020	U-238	1.3543	0.7624	0.76885	1.32	0.66	pCi	g	ARS1-B10-02235		1						
ARS1-B10-02256-13	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	GAM-A-020	AM-241	-0.0125	0.61369	0.61369	0.294	0.147	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-14	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	GAM-A-020	AM-241	-0.00621	0.98648	0.98648	0.135	0.0675	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-17	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	GAM-A-020	AM-241	-0.05834	0.24888	0.2489	0.323	0.1615	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-18	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	GAM-A-020	AM-241	0.082546	0.21287	0.21292	0.356	0.178	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-19	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	GAM-A-020	AM-241	-0.02694	0.13211	0.13212	0.132	0.066	pCi	g	ARS1-B10-02256		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02256-16	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	GAM-A-020	AM-241	0.007768	0.031095	0.031098	0.0526	0.0263	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-15	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	GAM-A-020	AM-241	-0.00295	0.11781	0.11782	0.171	0.0855	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-20	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	GAM-A-020	AM-241	0.009849	0.093381	0.093382	0.161	0.0805	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-13	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	GAM-A-020	RA-226	12.459	2.3964	2.4725	3.42	1.71	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-14	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	GAM-A-020	RA-226	1.9811	1.033	1.0378	1.33	0.665	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-17	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	GAM-A-020	RA-226	10.769	2.4871	2.5421	2.85	1.425	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-18	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	GAM-A-020	RA-226	40.206	3.1381	3.7022	3.2	1.6	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-19	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	GAM-A-020	RA-226	1.8011	1.0971	1.1009	1.41	0.705	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-16	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	GAM-A-020	RA-226	2.1948	0.49569	0.50714	0.588	0.294	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-15	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	GAM-A-020	RA-226	3.0639	1.4502	1.4583	1.92	0.96	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-20	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	GAM-A-020	RA-226	-0.38695	1.7613	1.7614	2.56	1.28	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-13	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	GAM-A-020	RA-228	3.9352	0.48093	0.53756	0.343	0.1715	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-14	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	GAM-A-020	RA-228	0.43423	0.19721	0.19901	0.285	0.1425	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-17	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	GAM-A-020	RA-228	3.3408	0.37397	0.42593	0.316	0.158	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-18	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	GAM-A-020	RA-228	3.0364	0.41727	0.45656	0.339	0.1695	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-19	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	GAM-A-020	RA-228	0.77302	0.19774	0.20339	0.173	0.0865	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-16	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	GAM-A-020	RA-228	0.45256	0.086766	0.091055	0.0885	0.04425	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-15	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	GAM-A-020	RA-228	1.2132	0.2365	0.24763	0.221	0.1105	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-20	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	GAM-A-020	RA-228	0.65082	0.19927	0.20313	0.367	0.1835	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-13	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	GAM-A-020	U-234	8.8819	2.1789	2.2743	3.46	1.73	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-14	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	GAM-A-020	U-234	1.1501	0.68846	0.69362	1.32	0.66	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-17	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	GAM-A-020	U-234	6.2814	1.6867	1.7486	2.84	1.42	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-18	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	GAM-A-020	U-234	43.632	3.308	4.6038	3.33	1.665	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-19	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	GAM-A-020	U-234	1.35	0.72664	0.73336	1.28	0.64	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-16	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	GAM-A-020	U-234	1.9534	0.3328	0.36377	0.472	0.236	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-15	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	GAM-A-020	U-234	1.889	0.88566	0.8968	1.69	0.845	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-20	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	GAM-A-020	U-234	0.98905	1.3479	1.3499	2.09	1.045	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-13	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	GAM-A-020	U-235	0.64536	0.56115	0.56286	0.92	0.46	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-14	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	GAM-A-020	U-235	-0.01226	0.59067	0.59067	0.443	0.2215	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-17	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	GAM-A-020	U-235	0.39189	0.51778	0.51846	0.867	0.4335	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-18	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	GAM-A-020	U-235	2.6909	0.59945	0.6267	0.981	0.4905	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-19	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	GAM-A-020	U-235	0.026633	0.25224	0.25225	0.435	0.2175	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-16	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	GAM-A-020	U-235	0.077813	0.11043	0.11056	0.185	0.0925	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-15	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	GAM-A-020	U-235	0.086036	0.32778	0.32783	0.568	0.284	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-20	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	GAM-A-020	U-235	0.22796	0.34355	0.3439	0.588	0.294	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-13	TLS-SB-IA1-B15 (15.0-16.0)032910D	ARS1-10-00690-015	GAM-A-020	U-238	8.8819	2.1789	2.2743	3.46	1.73	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-14	TLS-SB-IA1-B15 (27.0-28.0)03291C	ARS1-10-00690-016	GAM-A-020	U-238	1.1501	0.68846	0.69362	1.32	0.66	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02256-17	TLS-SB-IA1-B2 (11.0-12.0)03291C	ARS1-10-00690-019	GAM-A-020	U-238	6.2814	1.6867	1.7486	2.84	1.42	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-18	TLS-SB-IA1-B2 (24.0-25.0)03291C	ARS1-10-00690-020	GAM-A-020	U-238	43.632	3.308	4.6038	3.33	1.665	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-19	TLS-SB-IA1-B2 (25.0-26.0)03291C	ARS1-10-00690-021	GAM-A-020	U-238	1.35	0.72664	0.73336	1.28	0.64	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-16	TLS-SB-IA1-B2 (4.5-5.5)03291C	ARS1-10-00690-018	GAM-A-020	U-238	1.9534	0.3328	0.36377	0.472	0.236	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-15	TLS-SS-IA1-B2 (0.6-1.1)03291C	ARS1-10-00690-017	GAM-A-020	U-238	1.889	0.88566	0.8968	1.69	0.845	pCi	g	ARS1-B10-02256		1						
ARS1-B10-02256-20	TLS-SS-IA1-B4 (1.7-2.3)03291C	ARS1-10-00690-022	GAM-A-020	U-238	0.98905	1.3479	1.3499	2.09	1.045	pCi	g	ARS1-B10-02256		1	U	U				
ARS1-B10-02278-10	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	GAM-A-020	AM-241	0.055308	0.21594	0.21596	0.36	0.18	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-11	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	GAM-A-020	AM-241	0.036528	0.18549	0.1855	0.311	0.1555	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-12	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	GAM-A-020	AM-241	0.016976	0.070706	0.070712	0.12	0.06	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-09	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	GAM-A-020	AM-241	-0.0085	0.40664	0.40664	0.165	0.0825	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-06	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	GAM-A-020	AM-241	0.034422	0.13607	0.13608	0.23	0.115	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-07	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	GAM-A-020	AM-241	0.00928	0.049819	0.049821	0.0864	0.0432	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-04	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	GAM-A-020	AM-241	0.033943	0.11909	0.1191	0.201	0.1005	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-05	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	GAM-A-020	AM-241	-0.04981	0.11436	0.11439	0.159	0.0795	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-08	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	GAM-A-020	AM-241	0.042249	0.072585	0.072619	0.122	0.061	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-15	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	GAM-A-020	AM-241	0.071458	0.16547	0.16551	0.277	0.1385	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-16	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	GAM-A-020	AM-241	-0.00621	7.5274	7.5274	0.253	0.1265	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-17	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	GAM-A-020	AM-241	0.02234	0.061301	0.061313	0.104	0.052	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-14	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	GAM-A-020	AM-241	0.002973	0.064344	0.064344	0.112	0.056	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-21	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	GAM-A-020	AM-241	0.000283	0.19884	0.19884	0.336	0.168	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-22	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	GAM-A-020	AM-241	-0.03139	0.10484	0.10485	0.153	0.0765	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-19	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	GAM-A-020	AM-241	-0.0591	0.19026	0.19028	0.205	0.1025	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-20	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	GAM-A-020	AM-241	-0.00096	0.11027	0.11027	0.191	0.0955	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-23	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	GAM-A-020	AM-241	-0.01058	0.42326	0.42326	0.19	0.095	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-13	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	GAM-A-020	AM-241	0.003312	0.09197	0.09197	0.159	0.0795	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-18	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	GAM-A-020	AM-241	-0.03567	0.15657	0.15658	0.223	0.1115	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-10	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	GAM-A-020	RA-226	93.139	3.93	6.0126	2.6	1.3	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-11	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	GAM-A-020	RA-226	52.543	2.8059	3.803	2.5	1.25	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-12	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	GAM-A-020	RA-226	1.5697	0.88257	0.88589	1.15	0.575	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-09	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	GAM-A-020	RA-226	2.3069	1.2167	1.2219	2.05	1.025	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-06	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	GAM-A-020	RA-226	8.2539	2.3709	2.4049	2.66	1.33	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-07	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	GAM-A-020	RA-226	0.41866	0.78998	0.79024	1.44	0.72	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-04	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	GAM-A-020	RA-226	8.3631	2.5512	2.5837	2.42	1.21	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-05	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	GAM-A-020	RA-226	4.2236	1.4295	1.4444	1.71	0.855	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-08	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	GAM-A-020	RA-226	1.5129	0.93067	0.93361	1.37	0.685	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-15	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	GAM-A-020	RA-226	15.494	2.557	2.6667	2.66	1.33	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-16	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	GAM-A-020	RA-226	14.776	2.0361	2.1603	1.97	0.985	pCi	g	ARS1-B10-02278		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02278-17	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	GAM-A-020	RA-226	1.7133	1.1271	1.1302	1.49	0.745	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-14	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	GAM-A-020	RA-226	1.5722	1.1432	1.1457	1.59	0.795	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-21	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	GAM-A-020	RA-226	31.114	2.9381	3.3081	2.65	1.325	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-22	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	GAM-A-020	RA-226	2.7933	1.4995	1.506	1.75	0.875	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-19	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	GAM-A-020	RA-226	1.5783	1.301	1.3034	2.05	1.025	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-20	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	GAM-A-020	RA-226	6.2606	2.1648	2.1863	2.71	1.355	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-23	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	GAM-A-020	RA-226	1.9556	1.4394	1.4427	1.91	0.955	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-13	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	GAM-A-020	RA-226	1.3572	1.2499	1.2517	2.18	1.09	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-18	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	GAM-A-020	RA-226	2.8135	1.486	1.4927	2	1	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-10	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	GAM-A-020	RA-228	1.3028	0.27781	0.28896	0.317	0.1585	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-11	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	GAM-A-020	RA-228	1.5836	0.32435	0.33844	0.214	0.107	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-12	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	GAM-A-020	RA-228	0.787	0.19055	0.19651	0.164	0.082	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-09	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	GAM-A-020	RA-228	0.55134	0.17909	0.18222	0.31	0.155	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-06	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	GAM-A-020	RA-228	2.593	0.37873	0.41046	0.177	0.0885	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-07	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	GAM-A-020	RA-228	0.70903	0.18084	0.18594	0.16	0.08	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-04	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	GAM-A-020	RA-228	1.6942	0.26376	0.2833	0.297	0.1485	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-05	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	GAM-A-020	RA-228	1.1766	0.21175	0.2236	0.181	0.0905	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-08	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	GAM-A-020	RA-228	1.0467	0.16541	0.17732	0.193	0.0965	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-15	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	GAM-A-020	RA-228	2.6792	0.33627	0.3739	0.262	0.131	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-16	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	GAM-A-020	RA-228	1.8648	0.30101	0.3218	0.161	0.0805	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-17	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	GAM-A-020	RA-228	0.4976	0.17217	0.17482	0.288	0.144	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-14	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	GAM-A-020	RA-228	0.46014	0.14633	0.149	0.233	0.1165	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-21	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	GAM-A-020	RA-228	2.6915	0.33474	0.37287	0.319	0.1595	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-22	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	GAM-A-020	RA-228	0.59413	0.16269	0.16661	0.27	0.135	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-19	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	GAM-A-020	RA-228	0.48517	0.23768	0.23955	0.49	0.245	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-20	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	GAM-A-020	RA-228	2.6083	0.39006	0.42129	0.317	0.1585	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-23	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	GAM-A-020	RA-228	1.2047	0.23807	0.24937	0.26	0.13	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-13	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	GAM-A-020	RA-228	0.71271	0.20787	0.21237	0.318	0.159	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-18	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	GAM-A-020	RA-228	0.55758	0.21638	0.21899	0.352	0.176	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-10	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	GAM-A-020	U-234	78.041	3.5457	6.7358	3.19	1.595	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-11	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	GAM-A-020	U-234	44.509	2.7843	4.2919	2.7	1.35	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-12	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	GAM-A-020	U-234	1.0324	0.5868	0.59167	1.13	0.565	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-09	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	GAM-A-020	U-234	1.5735	1.4869	1.4913	1.95	0.975	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-06	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	GAM-A-020	U-234	7.069	1.3313	1.4288	2.11	1.055	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-07	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	GAM-A-020	U-234	1.4883	0.73124	0.73935	1.37	0.685	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-04	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	GAM-A-020	U-234	5.7832	1.2634	1.3328	2.06	1.03	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-05	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	GAM-A-020	U-234	2.9989	0.83641	0.86488	1.53	0.765	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-08	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	GAM-A-020	U-234	0.40612	0.8054	0.80595	1.44	0.72	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-15	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	GAM-A-020	U-234	11.533	1.6476	1.8522	2.51	1.255	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-16	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	GAM-A-020	U-234	10.676	1.5241	1.7137	2.36	1.18	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-17	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	GAM-A-020	U-234	0.84702	0.87974	0.88204	1.24	0.62	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-14	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	GAM-A-020	U-234	1.3354	0.9978	1.0026	1.46	0.73	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-21	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	GAM-A-020	U-234	27.325	2.1364	2.93	2.88	1.44	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-22	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	GAM-A-020	U-234	1.5459	0.63956	0.64988	1.55	0.775	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-19	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	GAM-A-020	U-234	2.02	1.345	1.3532	1.87	0.935	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-20	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	GAM-A-020	U-234	3.2123	1.2631	1.286	2.21	1.105	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-23	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	GAM-A-020	U-234	1.1613	0.87237	0.87652	1.58	0.79	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-13	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	GAM-A-020	U-234	0.83655	1.1184	1.12	1.75	0.875	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-18	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	GAM-A-020	U-234	5.8159	2.0003	2.0468	2.36	1.18	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-10	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	GAM-A-020	U-235	6.0846	0.73079	0.83957	0.739	0.3695	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-11	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	GAM-A-020	U-235	3.3911	0.55522	0.6011	0.628	0.314	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-12	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	GAM-A-020	U-235	0.054173	0.20961	0.20964	0.362	0.181	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-09	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	GAM-A-020	U-235	0.026334	0.28269	0.2827	0.5	0.25	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-06	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	GAM-A-020	U-235	0.13997	0.46144	0.46154	0.789	0.3945	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-07	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	GAM-A-020	U-235	0.055418	0.21048	0.21051	0.367	0.1835	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-04	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	GAM-A-020	U-235	0.43649	0.39561	0.39672	0.651	0.3255	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-05	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	GAM-A-020	U-235	0.1253	0.29416	0.29429	0.503	0.2515	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-08	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	GAM-A-020	U-235	0.071192	0.25598	0.25602	0.446	0.223	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-15	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	GAM-A-020	U-235	0.85221	0.46808	0.47164	0.742	0.371	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-16	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	GAM-A-020	U-235	0.69254	0.41312	0.41579	0.692	0.346	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-17	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	GAM-A-020	U-235	0.080859	0.22171	0.22178	0.382	0.191	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-14	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	GAM-A-020	U-235	-0.0863	357.35	357.35	0.451	0.2255	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-21	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	GAM-A-020	U-235	1.8782	0.58368	0.59746	0.903	0.4515	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-22	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	GAM-A-020	U-235	0.16491	0.25338	0.25363	0.429	0.2145	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-19	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	GAM-A-020	U-235	0.050096	0.39518	0.39519	0.688	0.344	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-20	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	GAM-A-020	U-235	0.12141	0.51291	0.51297	0.877	0.4385	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-23	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	GAM-A-020	U-235	-0.05887	2.6164	2.6164	0.615	0.3075	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-13	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	GAM-A-020	U-235	0.019611	0.25131	0.25131	0.45	0.225	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-18	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	GAM-A-020	U-235	0.20522	0.29451	0.29485	0.502	0.251	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-10	TLS-SB-IA1-B13 (14.0-15.0)03291C	ARS1-10-00690-029	GAM-A-020	U-238	78.041	3.5457	6.7358	3.19	1.595	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-11	TLS-SB-IA1-B13 (18.0-19.0)03291C	ARS1-10-00690-030	GAM-A-020	U-238	44.509	2.7843	4.2919	2.7	1.35	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-12	TLS-SB-IA1-B13 (25.0-26.0)03291C	ARS1-10-00690-031	GAM-A-020	U-238	1.0324	0.5868	0.59167	1.13	0.565	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-09	TLS-SB-IA1-B13 (5.3-6.3)03291C	ARS1-10-00690-028	GAM-A-020	U-238	1.5735	1.4869	1.4913	1.95	0.975	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-06	TLS-SB-IA1-B4 (11.0-12.0)03291C	ARS1-10-00690-025	GAM-A-020	U-238	7.069	1.3313	1.4288	2.11	1.055	pCi	g	ARS1-B10-02278		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02278-07	TLS-SB-IA1-B4 (25.2-26.2)03291C	ARS1-10-00690-026	GAM-A-020	U-238	1.4883	0.73124	0.73935	1.37	0.685	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-04	TLS-SB-IA1-B4 (4.0-5.0)03291C	ARS1-10-00690-023	GAM-A-020	U-238	5.7832	1.2634	1.3328	2.06	1.03	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-05	TLS-SB-IA1-B4 (9.0-10.0)03291C	ARS1-10-00690-024	GAM-A-020	U-238	2.9989	0.83641	0.86488	1.53	0.765	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-08	TLS-SS-IA1-B13 (0.5-1.0)03291C	ARS1-10-00690-027	GAM-A-020	U-238	0.40612	0.8054	0.80595	1.44	0.72	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-15	TLS-SB-IA1-B14 (16.0-17.0)03301C	ARS1-10-00700-003	GAM-A-020	U-238	11.533	1.6476	1.8522	2.51	1.255	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-16	TLS-SB-IA1-B14 (22.6-23.6)03301C	ARS1-10-00700-004	GAM-A-020	U-238	10.676	1.5241	1.7137	2.36	1.18	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-17	TLS-SB-IA1-B14 (28.6-29.6)03301C	ARS1-10-00700-005	GAM-A-020	U-238	0.84702	0.87974	0.88204	1.24	0.62	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-14	TLS-SB-IA1-B14 (6.5-7.5)03301C	ARS1-10-00700-002	GAM-A-020	U-238	1.3354	0.9978	1.0026	1.46	0.73	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-21	TLS-SB-IA1-B3 (13.5-14.5)03301C	ARS1-10-00700-009	GAM-A-020	U-238	27.325	2.1364	2.93	2.88	1.44	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-22	TLS-SB-IA1-B3 (25.9-26.9)03301C	ARS1-10-00700-010	GAM-A-020	U-238	1.5459	0.63956	0.64988	1.55	0.775	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-19	TLS-SB-IA1-B3 (4.4-5.4)03301C	ARS1-10-00700-007	GAM-A-020	U-238	2.02	1.345	1.3532	1.87	0.935	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-20	TLS-SB-IA1-B3 (7.0-8.0)03301C	ARS1-10-00700-008	GAM-A-020	U-238	3.2123	1.2631	1.286	2.21	1.105	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02278-23	TLS-SS-IA1-B12 (1.2-1.7)03301C	ARS1-10-00700-011	GAM-A-020	U-238	1.1613	0.87237	0.87652	1.58	0.79	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-13	TLS-SS-IA1-B14 (0.0-0.5)03301C	ARS1-10-00700-001	GAM-A-020	U-238	0.83655	1.1184	1.12	1.75	0.875	pCi	g	ARS1-B10-02278		1	U	U				
ARS1-B10-02278-18	TLS-SS-IA1-B3 (1.2-1.7)03301C	ARS1-10-00700-006	GAM-A-020	U-238	5.8159	2.0003	2.0468	2.36	1.18	pCi	g	ARS1-B10-02278		1						
ARS1-B10-02292-10	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	GAM-A-020	AM-241	0.039842	0.18515	0.18516	0.313	0.1565	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-11	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	GAM-A-020	AM-241	0.091516	0.12325	0.12335	0.204	0.102	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-12	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	GAM-A-020	AM-241	-0.00856	0.6176	0.6176	0.128	0.064	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-09	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	GAM-A-020	AM-241	-0.05658	0.11003	0.11007	0.184	0.092	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-20	TLS-SB-IA1-B16 (11.0-12.0)03301C	ARS1-10-00700-023	GAM-A-020	AM-241	0.027365	0.14608	0.14609	0.247	0.1235	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-19	TLS-SB-IA1-B16 (9.0-10.0)03301C	ARS1-10-00700-022	GAM-A-020	AM-241	0.018498	0.062964	0.062972	0.108	0.054	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-17	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	GAM-A-020	AM-241	0.097346	0.097585	0.097726	0.159	0.0795	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-16	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	GAM-A-020	AM-241	-0.01692	0.24891	0.24891	0.129	0.0645	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-18	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	GAM-A-020	AM-241	0.02214	0.088135	0.088143	0.152	0.076	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-13	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	GAM-A-020	AM-241	0.01376	0.11834	0.11834	0.201	0.1005	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-10	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	GAM-A-020	RA-226	17.189	2.8597	2.9805	2.87	1.435	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-11	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	GAM-A-020	RA-226	2.5078	1.2177	1.2241	1.64	0.82	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-12	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	GAM-A-020	RA-226	1.0387	1.1092	1.1104	1.51	0.755	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-09	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	GAM-A-020	RA-226	2.4512	1.2493	1.255	2.06	1.03	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-20	TLS-SB-IA1-B16 (11.0-12.0)03301C	ARS1-10-00700-023	GAM-A-020	RA-226	6.6436	2.5359	2.5576	2.8	1.4	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-19	TLS-SB-IA1-B16 (9.0-10.0)03301C	ARS1-10-00700-022	GAM-A-020	RA-226	2.9085	1.3038	1.3116	1.68	0.84	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-17	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	GAM-A-020	RA-226	1.8751	1.1962	1.1997	1.74	0.87	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-16	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	GAM-A-020	RA-226	2.221	1.506	1.5101	1.94	0.97	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-18	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	GAM-A-020	RA-226	0.97775	1.2894	1.2904	1.88	0.94	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-13	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	GAM-A-020	RA-226	5.4645	1.6396	1.6612	2.14	1.07	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-10	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	GAM-A-020	RA-228	3.295	0.4264	0.47143	0.344	0.172	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-11	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	GAM-A-020	RA-228	0.84522	0.20799	0.21418	0.156	0.078	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-12	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	GAM-A-020	RA-228	0.74992	0.15223	0.15909	0.222	0.111	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-09	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	GAM-A-020	RA-228	1.4695	0.26444	0.27923	0.19	0.095	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-20	TLS-SB-IA1-B16 (11.0-12.0)03301C	ARS1-10-00700-023	GAM-A-020	RA-228	2.3098	0.3512	0.37892	0.231	0.1155	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-19	TLS-SB-IA1-B16 (9.0-10.0)03301C	ARS1-10-00700-022	GAM-A-020	RA-228	0.5805	0.21244	0.21538	0.269	0.1345	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-17	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	GAM-A-020	RA-228	0.80057	0.21085	0.21643	0.264	0.132	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-16	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	GAM-A-020	RA-228	1.073	0.23269	0.24189	0.296	0.148	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-18	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	GAM-A-020	RA-228	0.3623	0.19569	0.19696	0.398	0.199	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-13	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	GAM-A-020	RA-228	1.2839	0.32613	0.3354	0.248	0.124	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-10	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	GAM-A-020	U-234	11.314	1.8508	2.0285	3.17	1.585	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-11	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	GAM-A-020	U-234	6.859	1.5404	1.6231	1.91	0.955	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-12	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	GAM-A-020	U-234	0.54404	0.74199	0.74306	1.28	0.64	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-09	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	GAM-A-020	U-234	2.2287	0.95694	0.9715	1.65	0.825	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-20	TLS-SB-IA1-B16 (11.0-12.0)03301C	ARS1-10-00700-023	GAM-A-020	U-234	4.6044	1.1609	1.2091	2.16	1.08	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-19	TLS-SB-IA1-B16 (9.0-10.0)03301C	ARS1-10-00700-022	GAM-A-020	U-234	1.7694	0.71328	0.72558	1.11	0.555	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-17	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	GAM-A-020	U-234	2.0904	0.8314	0.84613	1.46	0.73	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-16	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	GAM-A-020	U-234	1.5956	0.82056	0.82887	1.51	0.755	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-18	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	GAM-A-020	U-234	1.4474	0.92013	0.92624	1.57	0.785	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-13	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	GAM-A-020	U-234	2.1919	0.99735	1.0102	1.84	0.92	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-10	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	GAM-A-020	U-235	0.37868	0.53389	0.53451	0.896	0.448	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-11	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	GAM-A-020	U-235	0.10771	0.2527	0.25281	0.437	0.2185	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-12	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	GAM-A-020	U-235	0.087668	0.22654	0.22662	0.386	0.193	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-09	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	GAM-A-020	U-235	0.13182	0.33861	0.33872	0.581	0.2905	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-20	TLS-SB-IA1-B16 (11.0-12.0)03301C	ARS1-10-00700-023	GAM-A-020	U-235	0.64301	0.46664	0.4687	0.751	0.3755	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-19	TLS-SB-IA1-B16 (9.0-10.0)03301C	ARS1-10-00700-022	GAM-A-020	U-235	-0.01361	0.47062	0.47062	0.512	0.256	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-17	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	GAM-A-020	U-235	0.020435	0.3091	0.30911	0.541	0.2705	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-16	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	GAM-A-020	U-235	0.14856	0.32779	0.32794	0.555	0.2775	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-18	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	GAM-A-020	U-235	0.10861	0.30759	0.30768	0.529	0.2645	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-13	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	GAM-A-020	U-235	0.30604	0.37479	0.37536	0.625	0.3125	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-10	TLS-SB-IA1-B12 (19.0-20.0)03301C	ARS1-10-00700-013	GAM-A-020	U-238	11.314	1.8508	2.0285	3.17	1.585	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-11	TLS-SB-IA1-B12 (25.6-26.6)03301C	ARS1-10-00700-014	GAM-A-020	U-238	6.859	1.5404	1.6231	1.91	0.955	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-12	TLS-SB-IA1-B12 (27.0-28.0)03301C	ARS1-10-00700-015	GAM-A-020	U-238	0.54404	0.74199	0.74306	1.28	0.64	pCi	g	ARS1-B10-02292		1	U	U				
ARS1-B10-02292-09	TLS-SB-IA1-B12 (7.0-8.0)03301C	ARS1-10-00700-012	GAM-A-020	U-238	2.2287	0.95694	0.9715	1.65	0.825	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-20	TLS-SB-IA1-B16 (11.0-12.0)03301C	ARS1-10-00700-023	GAM-A-020	U-238	4.6044	1.1609	1.2091	2.16	1.08	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-19	TLS-SB-IA1-B16 (9.0-10.0)03301C	ARS1-10-00700-022	GAM-A-020	U-238	1.7694	0.71328	0.72558	1.11	0.555	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-17	TLS-SB-IA4-13 (14.0-15.0)03301C	ARS1-10-00700-020	GAM-A-020	U-238	2.0904	0.8314	0.84613	1.46	0.73	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-16	TLS-SB-IA4-13 (9.0-10.0)03301C	ARS1-10-00700-019	GAM-A-020	U-238	1.5956	0.82056	0.82887	1.51	0.755	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02292-18	TLS-SS-IA1-B16 (1.0-1.5)03301C	ARS1-10-00700-021	GAM-A-020	U-238	1.4474	0.92013	0.92624	1.57	0.785	pCi	g	ARS1-B10-02292		1	U	U				

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02292-13	TLS-SS-IA4-13 (0.7-1.3)03301C	ARS1-10-00700-016	GAM-A-020	U-238	2.1919	0.99735	1.0102	1.84	0.92	pCi	g	ARS1-B10-02292		1						
ARS1-B10-02305-04	TLS-SB-IA1-B16 (24.0-25.0)03301C	ARS1-10-00700-024	GAM-A-020	AM-241	-0.08191	0.17098	0.17104	0.285	0.1425	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-05	TLS-SB-IA1-B16 (25.4-26.4)03301C	ARS1-10-00700-025	GAM-A-020	AM-241	-0.05123	0.14364	0.14367	0.175	0.0875	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-08	TLS-SB-IA1-B17 (15.0-16.0)03301C	ARS1-10-00700-028	GAM-A-020	AM-241	0.13814	0.48148	0.48153	0.799	0.3995	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-09	TLS-SB-IA1-B17 (18.5-19.5)03301C	ARS1-10-00700-029	GAM-A-020	AM-241	-0.01954	0.54049	0.54049	0.354	0.177	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-10	TLS-SB-IA1-B17 (25.6-26.6)03301C	ARS1-10-00700-030	GAM-A-020	AM-241	-0.00986	0.087795	0.087797	0.15	0.075	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-07	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	GAM-A-020	AM-241	-0.00265	0.1396	0.1396	0.155	0.0775	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-06	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	GAM-A-020	AM-241	0	0.077807	0.077807	0.135	0.0675	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-04	TLS-SB-IA1-B16 (24.0-25.0)03301C	ARS1-10-00700-024	GAM-A-020	RA-226	30.098	2.4319	2.8419	2.36	1.18	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-05	TLS-SB-IA1-B16 (25.4-26.4)03301C	ARS1-10-00700-025	GAM-A-020	RA-226	1.6905	0.98948	0.99311	1.41	0.705	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-08	TLS-SB-IA1-B17 (15.0-16.0)03301C	ARS1-10-00700-028	GAM-A-020	RA-226	200.29	8.9948	13.292	8.11	4.055	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-09	TLS-SB-IA1-B17 (18.5-19.5)03301C	ARS1-10-00700-029	GAM-A-020	RA-226	51.281	3.4223	4.2808	3.5	1.75	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-10	TLS-SB-IA1-B17 (25.6-26.6)03301C	ARS1-10-00700-030	GAM-A-020	RA-226	1.6566	1.1991	1.2019	1.63	0.815	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-07	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	GAM-A-020	RA-226	1.0951	1.1543	1.1556	2.02	1.01	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-06	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	GAM-A-020	RA-226	1.93	1.1486	1.1524	1.69	0.845	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-04	TLS-SB-IA1-B16 (24.0-25.0)03301C	ARS1-10-00700-024	GAM-A-020	RA-228	1.2345	0.27358	0.28376	0.222	0.111	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-05	TLS-SB-IA1-B16 (25.4-26.4)03301C	ARS1-10-00700-025	GAM-A-020	RA-228	0.79223	0.18168	0.18812	0.214	0.107	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-08	TLS-SB-IA1-B17 (15.0-16.0)03301C	ARS1-10-00700-028	GAM-A-020	RA-228	2.196	0.67995	0.69303	1.09	0.545	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-09	TLS-SB-IA1-B17 (18.5-19.5)03301C	ARS1-10-00700-029	GAM-A-020	RA-228	1.1889	0.34629	0.35394	0.423	0.2115	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-10	TLS-SB-IA1-B17 (25.6-26.6)03301C	ARS1-10-00700-030	GAM-A-020	RA-228	0.37144	0.20409	0.20535	0.302	0.151	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-07	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	GAM-A-020	RA-228	0.22159	0.23855	0.23894	0.404	0.202	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-06	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	GAM-A-020	RA-228	0.75293	0.19952	0.20474	0.204	0.102	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-04	TLS-SB-IA1-B16 (24.0-25.0)03301C	ARS1-10-00700-024	GAM-A-020	U-234	22.751	2.0396	2.6621	2.12	1.06	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-05	TLS-SB-IA1-B16 (25.4-26.4)03301C	ARS1-10-00700-025	GAM-A-020	U-234	1.6198	0.72001	0.72976	1.34	0.67	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-08	TLS-SB-IA1-B17 (15.0-16.0)03301C	ARS1-10-00700-028	GAM-A-020	U-234	95.676	6.1281	9.4505	6.75	3.375	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-09	TLS-SB-IA1-B17 (18.5-19.5)03301C	ARS1-10-00700-029	GAM-A-020	U-234	28.372	2.1011	2.958	3.4	1.7	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-10	TLS-SB-IA1-B17 (25.6-26.6)03301C	ARS1-10-00700-030	GAM-A-020	U-234	1.5034	1.1483	1.1538	1.52	0.76	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-07	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	GAM-A-020	U-234	1.0524	1.0042	1.0072	1.52	0.76	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-06	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	GAM-A-020	U-234	0.78184	0.74381	0.74613	1.2	0.6	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-04	TLS-SB-IA1-B16 (24.0-25.0)03301C	ARS1-10-00700-024	GAM-A-020	U-235	1.8571	0.52153	0.53657	0.616	0.308	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-05	TLS-SB-IA1-B16 (25.4-26.4)03301C	ARS1-10-00700-025	GAM-A-020	U-235	0.074102	0.27663	0.27668	0.474	0.237	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-08	TLS-SB-IA1-B17 (15.0-16.0)03301C	ARS1-10-00700-028	GAM-A-020	U-235	8.9202	2.0184	2.1074	2.31	1.155	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-09	TLS-SB-IA1-B17 (18.5-19.5)03301C	ARS1-10-00700-029	GAM-A-020	U-235	2.0737	0.72399	0.73772	1.11	0.555	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-10	TLS-SB-IA1-B17 (25.6-26.6)03301C	ARS1-10-00700-030	GAM-A-020	U-235	-0.0214	0.55834	0.55834	0.458	0.229	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-07	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	GAM-A-020	U-235	-0.09143	1.2665	1.2665	0.657	0.3285	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-06	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	GAM-A-020	U-235	0.009539	0.27798	0.27798	0.491	0.2455	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-04	TLS-SB-IA1-B16 (24.0-25.0)03301C	ARS1-10-00700-024	GAM-A-020	U-238	22.751	2.0396	2.6621	2.12	1.06	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-05	TLS-SB-IA1-B16 (25.4-26.4)03301C	ARS1-10-00700-025	GAM-A-020	U-238	1.6198	0.72001	0.72976	1.34	0.67	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-08	TLS-SB-IA1-B17 (15.0-16.0)03301C	ARS1-10-00700-028	GAM-A-020	U-238	95.676	6.1281	9.4505	6.75	3.375	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-09	TLS-SB-IA1-B17 (18.5-19.5)03301C	ARS1-10-00700-029	GAM-A-020	U-238	28.372	2.1011	2.958	3.4	1.7	pCi	g	ARS1-B10-02305		1						
ARS1-B10-02305-10	TLS-SB-IA1-B17 (25.6-26.6)03301C	ARS1-10-00700-030	GAM-A-020	U-238	1.5034	1.1483	1.1538	1.52	0.76	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-07	TLS-SB-IA1-B17 (6.4-7.4)03301C	ARS1-10-00700-027	GAM-A-020	U-238	1.0524	1.0042	1.0072	1.52	0.76	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02305-06	TLS-SS-IA1-B17 (1.2-1.7)03301C	ARS1-10-00700-026	GAM-A-020	U-238	0.78184	0.74381	0.74613	1.2	0.6	pCi	g	ARS1-B10-02305		1	U	U				
ARS1-B10-02682-04	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	GAM-A-020	AM-241	0.006296	0.086294	0.086294	0.147	0.0735	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-08	TLS-SB-IA4-15 (13.0-14.0) 03011C	ARS1-10-00469-017	GAM-A-020	AM-241	0.28895	0.071002	0.072585	0.0833	0.04165	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-09	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	GAM-A-020	AM-241	0.023728	0.063596	0.063608	0.107	0.0535	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-12	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	GAM-A-020	AM-241	0.35268	0.13696	0.13819	0.156	0.078	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-13	TLS-SB-IA2-6 (29.0-30.0)03191C	ARS1-10-00610-026	GAM-A-020	AM-241	-0.02241	0.078898	0.078907	0.133	0.0665	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-14	TLS-SB-IA2-22 (3.0-4.0)03251C	ARS1-10-00660-022	GAM-A-020	AM-241	1.4E-05	0.079443	0.079443	0.136	0.068	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-04	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	GAM-A-020	RA-226	1.9933	1.0046	1.0093	1.36	0.68	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-08	TLS-SB-IA4-15 (13.0-14.0) 03011C	ARS1-10-00469-017	GAM-A-020	RA-226	1.0828	0.78624	0.78801	1.35	0.675	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-09	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	GAM-A-020	RA-226	1.8435	0.99254	0.99683	1.22	0.61	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-12	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	GAM-A-020	RA-226	2.5581	1.184	1.1909	1.53	0.765	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-13	TLS-SB-IA2-6 (29.0-30.0)03191C	ARS1-10-00610-026	GAM-A-020	RA-226	2.4534	0.96293	0.97037	1.29	0.645	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-14	TLS-SB-IA2-22 (3.0-4.0)03251C	ARS1-10-00660-022	GAM-A-020	RA-226	1.9653	1.0485	1.0529	1.3	0.65	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-04	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	GAM-A-020	RA-228	1.114	0.19464	0.20617	0.156	0.078	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-08	TLS-SB-IA4-15 (13.0-14.0) 03011C	ARS1-10-00469-017	GAM-A-020	RA-228	0.82381	0.15858	0.16636	0.202	0.101	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-09	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	GAM-A-020	RA-228	0.84437	0.17112	0.17885	0.132	0.066	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-12	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	GAM-A-020	RA-228	0.89199	0.18266	0.19075	0.206	0.103	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-13	TLS-SB-IA2-6 (29.0-30.0)03191C	ARS1-10-00610-026	GAM-A-020	RA-228	0.82414	0.18595	0.19264	0.129	0.0645	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-14	TLS-SB-IA2-22 (3.0-4.0)03251C	ARS1-10-00660-022	GAM-A-020	RA-228	0.90389	0.18225	0.19041	0.164	0.082	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-04	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	GAM-A-020	U-234	1.2922	0.83623	0.84185	1.16	0.58	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-08	TLS-SB-IA4-15 (13.0-14.0) 03011C	ARS1-10-00469-017	GAM-A-020	U-234	1.0356	0.62122	0.62586	1.07	0.535	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-09	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	GAM-A-020	U-234	1.2635	0.77908	0.78458	0.999	0.4995	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-12	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	GAM-A-020	U-234	2.0474	0.68631	0.70256	1.39	0.695	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-13	TLS-SB-IA2-6 (29.0-30.0)03191C	ARS1-10-00610-026	GAM-A-020	U-234	1.2027	0.97044	0.97464	1.29	0.645	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-14	TLS-SB-IA2-22 (3.0-4.0)03251C	ARS1-10-00660-022	GAM-A-020	U-234	1.3116	0.79579	0.80159	1.35	0.675	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-04	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	GAM-A-020	U-235	0.16044	0.26402	0.26424	0.444	0.222	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-08	TLS-SB-IA4-15 (13.0-14.0) 03011C	ARS1-10-00469-017	GAM-A-020	U-235	0.054981	0.19757	0.1976	0.342	0.171	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-09	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	GAM-A-020	U-235	0.074005	0.2131	0.21316	0.361	0.1805	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-12	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	GAM-A-020	U-235	0.13471	0.26069	0.26086	0.442	0.221	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-13	TLS-SB-IA2-6 (29.0-30.0)03191C	ARS1-10-00610-026	GAM-A-020	U-235	0.17198	0.24043	0.24071	0.404	0.202	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-14	TLS-SB-IA2-22 (3.0-4.0)03251C	ARS1-10-00660-022	GAM-A-020	U-235	-0.04246	0.85409	0.85409	0.409	0.2045	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-04	TLS-SB-IA3-21(1.0-2.0)02171C	ARS1-10-00311-018	GAM-A-020	U-238	1.2922	0.83623	0.84185	1.16	0.58	pCi	g	ARS1-B10-02682		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-02682-08	TLS-SB-IA4-15 (13.0-14.0) 03011C	ARS1-10-00469-017	GAM-A-020	U-238	1.0356	0.62122	0.62586	1.07	0.535	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-09	TLS-SB-IA3FL-5 (6.0-7.0)03041C	ARS1-10-00492-014	GAM-A-020	U-238	1.2635	0.77908	0.78458	0.999	0.4995	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-12	TLS-SS-IA6-19 (1.1-1.6)03181C	ARS1-10-00609-001	GAM-A-020	U-238	2.0474	0.68631	0.70256	1.39	0.695	pCi	g	ARS1-B10-02682		1						
ARS1-B10-02682-13	TLS-SB-IA2-6 (29.0-30.0)03191C	ARS1-10-00610-026	GAM-A-020	U-238	1.2027	0.97044	0.97464	1.29	0.645	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-02682-14	TLS-SB-IA2-22 (3.0-4.0)03251C	ARS1-10-00660-022	GAM-A-020	U-238	1.3116	0.79579	0.80159	1.35	0.675	pCi	g	ARS1-B10-02682		1	U	U				
ARS1-B10-03494-35	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	GAM-A-020	AM-241	-0.00967	0.029057	0.029062	0.0483	0.02415	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-27	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	GAM-A-020	AM-241	0.007035	0.035829	0.035831	0.0597	0.02985	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-29	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	GAM-A-020	AM-241	0.002093	0.029288	0.029288	0.049	0.0245	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-30	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	GAM-A-020	AM-241	-0.00394	0.55195	0.55195	0.0497	0.02485	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-26	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	GAM-A-020	AM-241	0.007184	0.026102	0.026104	0.0435	0.02175	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-38	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	GAM-A-020	AM-241	0.60541	0.044471	0.054543	0.0439	0.02195	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-36	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	GAM-A-020	AM-241	0.00462	0.027822	0.027823	0.0465	0.02325	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-46	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	GAM-A-020	AM-241	0.005268	0.027554	0.027555	0.0459	0.02295	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-43	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	GAM-A-020	AM-241	0.004861	0.030694	0.030695	0.0512	0.0256	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-44	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	GAM-A-020	AM-241	-0.0035	0.89405	0.89405	0.041	0.0205	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-40	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	GAM-A-020	AM-241	0.088198	0.03727	0.037553	0.0467	0.02335	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-48	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	GAM-A-020	AM-241	-0.00501	0.028656	0.028658	0.0478	0.0239	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-45	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	GAM-A-020	AM-241	0.002323	0.029566	0.029566	0.0497	0.02485	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-42	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	GAM-A-020	AM-241	0.017513	0.030216	0.03023	0.0501	0.02505	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-39	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	GAM-A-020	AM-241	0.000554	0.029797	0.029797	0.0499	0.02495	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-47	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	GAM-A-020	AM-241	-0.00472	0.23985	0.23985	0.0454	0.0227	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-41	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	GAM-A-020	AM-241	-0.00465	0.03426	0.034261	0.0571	0.02855	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-39	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	GAM-A-020	BE-7	-0.0509	0.13151	0.13155	0.221	0.1105	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-35	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	GAM-A-020	RA-226	1.8614	0.47296	0.48162	0.544	0.272	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-27	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	GAM-A-020	RA-226	2.034	0.65698	0.66485	0.719	0.3595	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-29	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	GAM-A-020	RA-226	1.3359	0.44206	0.44685	0.552	0.276	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-30	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	GAM-A-020	RA-226	1.3152	0.39353	0.39902	0.501	0.2505	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-26	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	GAM-A-020	RA-226	1.2494	0.36577	0.37109	0.58	0.29	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-38	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	GAM-A-020	RA-226	1.0154	0.3087	0.31341	0.523	0.2615	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-36	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	GAM-A-020	RA-226	1.4673	0.4271	0.4334	0.518	0.259	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-46	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	GAM-A-020	RA-226	1.1429	0.316	0.32089	0.526	0.263	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-43	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	GAM-A-020	RA-226	1.5623	0.35129	0.35949	0.576	0.288	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-44	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	GAM-A-020	RA-226	1.2468	0.35234	0.36062	0.483	0.2415	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-40	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	GAM-A-020	RA-226	1.338	0.40216	0.40772	0.525	0.2625	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-48	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	GAM-A-020	RA-226	1.3702	0.4166	0.42195	0.521	0.2605	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-45	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	GAM-A-020	RA-226	2.712	0.54567	0.56236	0.692	0.346	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-42	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	GAM-A-020	RA-226	1.394	0.37667	0.3831	0.54	0.27	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-39	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	GAM-A-020	RA-226	1.3742	0.43598	0.44112	0.561	0.2805	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-47	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	GAM-A-020	RA-226	1.793	0.45778	0.47092	0.624	0.312	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-41	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	GAM-A-020	RA-226	1.4846	0.38832	0.39537	0.567	0.2835	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-35	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	GAM-A-020	RA-228	0.74218	0.082688	0.09428	0.0883	0.04415	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-27	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	GAM-A-020	RA-228	1.0709	0.11059	0.12877	0.107	0.0535	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-29	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	GAM-A-020	RA-228	0.79042	0.079605	0.093078	0.0835	0.04175	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-30	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	GAM-A-020	RA-228	0.72942	0.091932	0.10232	0.0781	0.03905	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-26	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	GAM-A-020	RA-228	0.6313	0.078939	0.087997	0.117	0.0585	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-38	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	GAM-A-020	RA-228	0.65081	0.086686	0.095353	0.105	0.0525	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-36	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	GAM-A-020	RA-228	0.57476	0.075648	0.083522	0.0843	0.04215	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-46	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	GAM-A-020	RA-228	0.71189	0.054534	0.069723	0.0681	0.03405	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-43	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	GAM-A-020	RA-228	0.70088	0.08687	0.096828	0.087	0.0435	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-44	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	GAM-A-020	RA-228	0.55807	0.065689	0.074287	0.0999	0.04995	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-48	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	GAM-A-020	RA-228	0.58756	0.056692	0.067079	0.0733	0.03665	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-45	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	GAM-A-020	RA-228	1.034	0.077725	0.10049	0.105	0.0525	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-42	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	GAM-A-020	RA-228	0.69179	0.08358	0.093815	0.0857	0.04285	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-40	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	GAM-A-020	RA-228	0.69908	0.095996	0.10521	0.078	0.039	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-39	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	GAM-A-020	RA-228	0.6319	0.08689	0.095062	0.0793	0.03965	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-47	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	GAM-A-020	RA-228	0.82157	0.092444	0.10561	0.101	0.0505	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-41	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	GAM-A-020	RA-228	0.77381	0.084374	0.096497	0.0982	0.0491	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-35	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	GAM-A-020	U-234	0.7601	0.30744	0.31271	0.419	0.2095	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-27	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	GAM-A-020	U-234	1.0498	0.27402	0.28464	0.503	0.2515	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-29	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	GAM-A-020	U-234	0.93159	0.2509	0.26049	0.455	0.2275	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-30	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	GAM-A-020	U-234	0.73926	0.22384	0.23032	0.42	0.21	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-26	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	GAM-A-020	U-234	0.99616	0.27164	0.2813	0.534	0.267	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-38	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	GAM-A-020	U-234	0.95273	0.26827	0.27723	0.458	0.229	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-36	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	GAM-A-020	U-234	0.90385	0.23133	0.24065	0.424	0.212	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-46	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	GAM-A-020	U-234	0.76816	0.27447	0.2802	0.488	0.244	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-43	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	GAM-A-020	U-234	0.99134	0.27932	0.28864	0.527	0.2635	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-44	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	GAM-A-020	U-234	0.68241	0.1883	0.19466	0.343	0.1715	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-48	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	GAM-A-020	U-234	0.79842	0.26078	0.26729	0.47	0.235	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-45	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	GAM-A-020	U-234	1.2383	0.27032	0.28519	0.484	0.242	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-42	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	GAM-A-020	U-234	0.99606	0.23662	0.24766	0.44	0.22	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-40	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	GAM-A-020	U-234	0.68205	0.24102	0.24616	0.453	0.2265	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-39	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	GAM-A-020	U-234	0.90977	0.27172	0.2802	0.484	0.242	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-47	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	GAM-A-020	U-234	1.0134	0.32313	0.33134	0.438	0.219	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-41	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	GAM-A-020	U-234	1.094	0.30502	0.31575	0.564	0.282	pCi	g	ARS1-B10-03494		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03494-35	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	GAM-A-020	U-235	0.059741	0.093644	0.093732	0.156	0.078	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-27	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	GAM-A-020	U-235	0.057359	0.11275	0.11282	0.188	0.094	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-29	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	GAM-A-020	U-235	0.032994	0.10002	0.10005	0.168	0.084	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-30	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	GAM-A-020	U-235	0.046793	0.096123	0.096176	0.161	0.0805	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-26	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	GAM-A-020	U-235	0.032133	0.092244	0.09227	0.157	0.0785	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-38	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	GAM-A-020	U-235	0.047517	0.081905	0.08198	0.138	0.069	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-36	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	GAM-A-020	U-235	0.052966	0.090902	0.090974	0.152	0.076	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-46	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	GAM-A-020	U-235	0.010586	0.087872	0.087874	0.149	0.0745	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-43	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	GAM-A-020	U-235	0.052043	0.09165	0.091719	0.154	0.077	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-44	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	GAM-A-020	U-235	-0.03441	1.3763	1.3763	0.139	0.0695	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-48	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	GAM-A-020	U-235	0.062927	0.082866	0.082976	0.139	0.0695	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-45	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	GAM-A-020	U-235	0.042577	0.1193	0.11934	0.2	0.1	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-42	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	GAM-A-020	U-235	0.060615	0.097802	0.09789	0.163	0.0815	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-40	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	GAM-A-020	U-235	0.034822	0.096574	0.096604	0.162	0.081	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-39	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	GAM-A-020	U-235	0.073881	0.098317	0.098445	0.164	0.082	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-47	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	GAM-A-020	U-235	0.087837	0.10094	0.10123	0.168	0.084	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-41	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	GAM-A-020	U-235	0.0442	0.10114	0.10118	0.171	0.0855	pCi	g	ARS1-B10-03494		1	U	U				
ARS1-B10-03494-35	TLS-SB-IA4-21(9.5-10.5)02181C	ARS1-10-00311-048	GAM-A-020	U-238	0.7601	0.30744	0.31271	0.419	0.2095	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-27	TLS-SB-IA4-22(0.5-1.5)02181C	ARS1-10-00311-034	GAM-A-020	U-238	1.0498	0.27402	0.28464	0.503	0.2515	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-29	TLS-SB-IA4-22(2.5-3.5)02181C	ARS1-10-00311-036	GAM-A-020	U-238	0.93159	0.2509	0.26049	0.455	0.2275	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-30	TLS-SB-IA4-22(7.0-8.0)021810D	ARS1-10-00311-038	GAM-A-020	U-238	0.73926	0.22384	0.23032	0.42	0.21	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-26	TLS-SS-IA4-22(0.0-0.5)02181C	ARS1-10-00311-033	GAM-A-020	U-238	0.99616	0.27164	0.2813	0.534	0.267	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-38	TLS-SB-IA4-16 (13.0-14.0) 022610D	ARS1-10-00467-011	GAM-A-020	U-238	0.95273	0.26827	0.27723	0.458	0.229	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-36	TLS-SB-IA4-16 (7.0-8.0) 02261C	ARS1-10-00467-009	GAM-A-020	U-238	0.90385	0.23133	0.24065	0.424	0.212	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-42	TLS-SB-IA4-20 (3.0-4.0) 03021C	ARS1-10-00468-007	GAM-A-020	U-238	0.99606	0.23662	0.24766	0.44	0.22	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-46	TLS-SB-IA4-20 (30.0-31.0) 03021C	ARS1-10-00468-011	GAM-A-020	U-238	0.76816	0.27447	0.2802	0.488	0.244	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-43	TLS-SB-IA4-20 (9.0-10.0) 03021C	ARS1-10-00468-008	GAM-A-020	U-238	0.99134	0.27932	0.28864	0.527	0.2635	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-44	TLS-SB-IA4-20 (9.0-10.0) 030210D	ARS1-10-00468-009	GAM-A-020	U-238	0.68241	0.1883	0.19466	0.343	0.1715	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-48	TLS-SB-IA4-14 (4.0-5.0) 03021C	ARS1-10-00468-013	GAM-A-020	U-238	0.79842	0.26078	0.26729	0.47	0.235	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-45	TLS-SB-IA4-20 (21.9-22.9) 03021C	ARS1-10-00468-010	GAM-A-020	U-238	1.2383	0.27032	0.28519	0.484	0.242	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-40	TLS-SB-IA4-4 (19.0-20.0) 03021C	ARS1-10-00468-005	GAM-A-020	U-238	0.68205	0.24102	0.24616	0.453	0.2265	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-39	TLS-SB-IA4-4 (2.5-3.5) 03021C	ARS1-10-00468-003	GAM-A-020	U-238	0.90977	0.27172	0.2802	0.484	0.242	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-47	TLS-SS-IA4-14 (1.0-1.5) 03021C	ARS1-10-00468-012	GAM-A-020	U-238	1.0134	0.32313	0.33134	0.438	0.219	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03494-41	TLS-SS-IA4-20 (1.5-2.0) 03021C	ARS1-10-00468-006	GAM-A-020	U-238	1.094	0.30502	0.31575	0.564	0.282	pCi	g	ARS1-B10-03494		1						
ARS1-B10-03586-04	TLS-SB-IA4-14 (13.0-14.0) 03021C	ARS1-10-00468-014	GAM-A-020	AM-241	0.014995	0.029314	0.029325	0.0486	0.0243	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-06	TLS-SB-IA4-18 (44.0-45.0) 03021C	ARS1-10-00468-019	GAM-A-020	AM-241	0.00159	0.034789	0.034789	0.0579	0.02895	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-05	TLS-SB-IA4-18 (9.0-10.0) 03021C	ARS1-10-00468-016	GAM-A-020	AM-241	0.004178	0.032053	0.032053	0.0534	0.0267	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-14	TLS-SB-IA4-15 (1.2-2.2) 03011C	ARS1-10-00469-014	GAM-A-020	AM-241	0.005228	0.033423	0.033424	0.0557	0.02785	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-15	TLS-SB-IA4-15 (2.2-3.2) 030110D	ARS1-10-00469-016	GAM-A-020	AM-241	-0.01052	0.029114	0.029119	0.0484	0.0242	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-17	TLS-SB-IA4-19 (1.0-2.0) 03011C	ARS1-10-00469-019	GAM-A-020	AM-241	0.024602	0.0347	0.034724	0.0573	0.02865	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-18	TLS-SB-IA4-19 (27.0-28.0) 03011C	ARS1-10-00469-021	GAM-A-020	AM-241	-0.00478	0.13224	0.13224	0.0452	0.0226	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-10	TLS-SB-IA4-7 (2.3-3.3) 03011C	ARS1-10-00469-009	GAM-A-020	AM-241	0.012035	0.032857	0.032863	0.0546	0.0273	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-12	TLS-SB-IA4-7 (24.0-25.0) 030110D	ARS1-10-00469-012	GAM-A-020	AM-241	-0.00492	0.031013	0.031014	0.0517	0.02585	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-11	TLS-SB-IA4-7 (3.3-4.3) 03011C	ARS1-10-00469-010	GAM-A-020	AM-241	0.01272	0.030638	0.030645	0.051	0.0255	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-08	TLS-SB-IA4-8 (26.2-27.2) 03011C	ARS1-10-00469-004	GAM-A-020	AM-241	0.007949	0.029003	0.029006	0.0484	0.0242	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-13	TLS-SS-IA4-15 (0.7-1.2) 03011C	ARS1-10-00469-013	GAM-A-020	AM-241	0.008783	0.033451	0.033454	0.0557	0.02785	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-16	TLS-SS-IA4-19 (0.5-1.0) 03011C	ARS1-10-00469-018	GAM-A-020	AM-241	0.00789	0.030225	0.030228	0.0503	0.02515	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-09	TLS-SS-IA4-7 (0.8-1.3) 03011C	ARS1-10-00469-007	GAM-A-020	AM-241	-0.00383	0.026313	0.026313	0.044	0.022	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-07	TLS-SS-IA4-8 (1.3-1.8) 03011C	ARS1-10-00469-001	GAM-A-020	AM-241	0.007004	0.027619	0.027622	0.046	0.023	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-23	TLS-SB-IA4-2 (13.0-14.0) 03031C	ARS1-10-00473-014	GAM-A-020	AM-241	0.001445	0.029701	0.029701	0.0497	0.02485	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-26	TLS-SB-IA4-1 (9.0-10.0) 03031C	ARS1-10-00473-024	GAM-A-020	AM-241	-0.00254	0.02223	0.02223	0.0373	0.01865	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-22	TLS-SB-IA4-2 (12.0-13.0) 03031C	ARS1-10-00473-013	GAM-A-020	AM-241	0.005972	0.030893	0.030894	0.0514	0.0257	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-21	TLS-SB-IA4-2 (2.0-3.0) 03031C	ARS1-10-00473-012	GAM-A-020	AM-241	0.00226	0.02006	0.02006	0.0336	0.0168	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-25	TLS-SB-IA4-9 (17.3-18.3) 03031C	ARS1-10-00473-020	GAM-A-020	AM-241	0.013706	0.031603	0.03161	0.0524	0.0262	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-20	TLS-SS-IA4-2 (1.5-2.0) 03031C	ARS1-10-00473-011	GAM-A-020	AM-241	0.011662	0.024055	0.024062	0.0399	0.01995	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-24	TLS-SS-IA4-9 (0.2-0.8) 03031C	ARS1-10-00473-015	GAM-A-020	AM-241	-0.01022	0.028284	0.028289	0.047	0.0235	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-04	TLS-SB-IA4-14 (13.0-14.0) 03021C	ARS1-10-00468-014	GAM-A-020	RA-226	1.7087	0.37841	0.38751	0.496	0.248	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-06	TLS-SB-IA4-18 (44.0-45.0) 03021C	ARS1-10-00468-019	GAM-A-020	RA-226	1.0047	0.45097	0.45377	0.583	0.2915	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-05	TLS-SB-IA4-18 (9.0-10.0) 03021C	ARS1-10-00468-016	GAM-A-020	RA-226	0.9653	0.42365	0.43523	0.497	0.2485	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-14	TLS-SB-IA4-15 (1.2-2.2) 03011C	ARS1-10-00469-014	GAM-A-020	RA-226	1.2553	0.40318	0.42353	0.523	0.2615	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-15	TLS-SB-IA4-15 (2.2-3.2) 030110D	ARS1-10-00469-016	GAM-A-020	RA-226	0.95444	0.27499	0.29213	0.382	0.191	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-17	TLS-SB-IA4-19 (1.0-2.0) 03011C	ARS1-10-00469-019	GAM-A-020	RA-226	1.5195	0.45012	0.4565	0.57	0.285	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-18	TLS-SB-IA4-19 (27.0-28.0) 03011C	ARS1-10-00469-021	GAM-A-020	RA-226	1.0007	0.38853	0.39175	0.486	0.243	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-10	TLS-SB-IA4-7 (2.3-3.3) 03011C	ARS1-10-00469-009	GAM-A-020	RA-226	-0.5969	1.0366	1.037	0.694	0.347	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-12	TLS-SB-IA4-7 (24.0-25.0) 030110D	ARS1-10-00469-012	GAM-A-020	RA-226	1.2395	0.41704	0.42163	0.599	0.2995	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-11	TLS-SB-IA4-7 (3.3-4.3) 03011C	ARS1-10-00469-010	GAM-A-020	RA-226	1.7233	0.49708	0.50453	0.59	0.295	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-08	TLS-SB-IA4-8 (26.2-27.2) 03011C	ARS1-10-00469-004	GAM-A-020	RA-226	1.4835	0.57387	0.57867	0.568	0.284	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-13	TLS-SS-IA4-15 (0.7-1.2) 03011C	ARS1-10-00469-013	GAM-A-020	RA-226	1.9826	0.51504	0.52407	0.618	0.309	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-16	TLS-SS-IA4-19 (0.5-1.0) 03011C	ARS1-10-00469-018	GAM-A-020	RA-226	1.4061	0.34974	0.35642	0.577	0.2885	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-09	TLS-SS-IA4-7 (0.8-1.3) 03011C	ARS1-10-00469-007	GAM-A-020	RA-226	1.3899	0.44499	0.45013	0.571	0.2855	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-07	TLS-SS-IA4-8 (1.3-1.8) 03011C	ARS1-10-00469-001	GAM-A-020	RA-226	1.3519	0.43439	0.43964	0.611	0.3055	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-23	TLS-SB-IA4-2 (13.0-14.0) 03031C	ARS1-10-00473-014	GAM-A-020	RA-226	1.2829	0.44663	0.45124	0.543	0.2715	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-26	TLS-SB-IA4-1 (9.0-10.0) 03031C	ARS1-10-00473-024	GAM-A-020	RA-226	0.69235	0.4069	0.41314	0.463	0.2315	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-22	TLS-SB-IA4-2 (12.0-13.0) 03031C	ARS1-10-00473-013	GAM-A-020	RA-226	1.0623	0.30589	0.32499	0.441	0.2205	pCi	g	ARS1-B10-03586		1						

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ARS1-B10-03586-21	TLS-SB-IA4-2 (2.0-3.0) 030310	ARS1-10-00473-012	GAM-A-020	RA-226	0.84148	0.26091	0.27501	0.358	0.179	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-25	TLS-SB-IA4-9 (17.3-18.3) 030310	ARS1-10-00473-020	GAM-A-020	RA-226	1.0945	0.34274	0.36091	0.457	0.2285	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-20	TLS-SS-IA4-2 (1.5-2.0) 03031	ARS1-10-00473-011	GAM-A-020	RA-226	1.0212	0.33735	0.34257	0.509	0.2545	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-24	TLS-SS-IA4-9 (0.2-0.8) 03031	ARS1-10-00473-015	GAM-A-020	RA-226	1.3446	0.48846	0.49472	0.662	0.331	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-04	TLS-SB-IA4-14 (13.0-14.0) 03021	ARS1-10-00468-014	GAM-A-020	RA-228	0.69207	0.093706	0.10278	0.0876	0.0438	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-06	TLS-SB-IA4-18 (44.0-45.0) 03021	ARS1-10-00468-019	GAM-A-020	RA-228	0.76198	0.088135	0.099468	0.0711	0.03555	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-05	TLS-SB-IA4-18 (9.0-10.0) 03021	ARS1-10-00468-016	GAM-A-020	RA-228	0.92846	0.10485	0.12464	0.0895	0.04475	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-14	TLS-SB-IA4-15 (1.2-2.2) 03011	ARS1-10-00469-014	GAM-A-020	RA-228	0.76422	0.10473	0.11851	0.0952	0.0476	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-15	TLS-SB-IA4-15 (2.2-3.2) 030110	ARS1-10-00469-016	GAM-A-020	RA-228	0.57286	0.09131	0.10033	0.0814	0.0407	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-17	TLS-SB-IA4-19 (1.0-2.0) 03011	ARS1-10-00469-019	GAM-A-020	RA-228	0.70363	0.068567	0.080712	0.0937	0.04685	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-18	TLS-SB-IA4-19 (27.0-28.0) 03011	ARS1-10-00469-021	GAM-A-020	RA-228	0.66629	0.07124	0.082216	0.0737	0.03685	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-10	TLS-SB-IA4-7 (2.3-3.3) 03011	ARS1-10-00469-009	GAM-A-020	RA-228	0.78468	0.069231	0.084178	0.082	0.041	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-12	TLS-SB-IA4-7 (24.0-25.0) 030110	ARS1-10-00469-012	GAM-A-020	RA-228	0.57202	0.087859	0.094432	0.0721	0.03605	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-11	TLS-SB-IA4-7 (3.3-4.3) 03011	ARS1-10-00469-010	GAM-A-020	RA-228	0.62043	0.10038	0.10741	0.0898	0.0449	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-08	TLS-SB-IA4-8 (26.2-27.2) 03011	ARS1-10-00469-004	GAM-A-020	RA-228	0.81523	0.073967	0.089401	0.0841	0.04205	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-13	TLS-SS-IA4-15 (0.7-1.2) 03011	ARS1-10-00469-013	GAM-A-020	RA-228	0.7987	0.10677	0.11736	0.0954	0.0477	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-16	TLS-SS-IA4-19 (0.5-1.0) 03011	ARS1-10-00469-018	GAM-A-020	RA-228	0.81196	0.089828	0.10259	0.0806	0.0403	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-09	TLS-SS-IA4-7 (0.8-1.3) 03011	ARS1-10-00469-007	GAM-A-020	RA-228	0.80454	0.10516	0.11606	0.0911	0.04555	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-07	TLS-SS-IA4-8 (1.3-1.8) 03011	ARS1-10-00469-001	GAM-A-020	RA-228	0.6853	0.1311	0.13773	0.109	0.0545	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-23	TLS-SB-IA4-2 (13.0-14.0) 03031	ARS1-10-00473-014	GAM-A-020	RA-228	0.76615	0.0831	0.095565	0.0816	0.0408	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-26	TLS-SB-IA4-1 (9.0-10.0) 03031	ARS1-10-00473-024	GAM-A-020	RA-228	0.65609	0.067801	0.082854	0.0818	0.0409	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-22	TLS-SB-IA4-2 (12.0-13.0) 03031	ARS1-10-00473-013	GAM-A-020	RA-228	0.79654	0.072912	0.093052	0.0809	0.04045	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-21	TLS-SB-IA4-2 (2.0-3.0) 03031	ARS1-10-00473-012	GAM-A-020	RA-228	0.54976	0.078266	0.087851	0.0694	0.0347	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-25	TLS-SB-IA4-9 (17.3-18.3) 03031	ARS1-10-00473-020	GAM-A-020	RA-228	0.81761	0.094225	0.11136	0.0819	0.04095	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-20	TLS-SS-IA4-2 (1.5-2.0) 03031	ARS1-10-00473-011	GAM-A-020	RA-228	0.49086	0.06905	0.075841	0.0817	0.04085	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-24	TLS-SS-IA4-9 (0.2-0.8) 03031	ARS1-10-00473-015	GAM-A-020	RA-228	0.71277	0.11698	0.12553	0.104	0.052	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-14	TLS-SB-IA4-15 (1.2-2.2) 03011	ARS1-10-00469-014	GAM-A-020	U-234	0.64386	0.22893	0.23309	0.514	0.257	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-04	TLS-SB-IA4-14 (13.0-14.0) 03021	ARS1-10-00468-014	GAM-A-020	U-234	0.76757	0.32366	0.32877	0.448	0.224	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-06	TLS-SB-IA4-18 (44.0-45.0) 03021	ARS1-10-00468-019	GAM-A-020	U-234	0.761	0.22929	0.23621	0.486	0.243	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-05	TLS-SB-IA4-18 (9.0-10.0) 03021	ARS1-10-00468-016	GAM-A-020	U-234	0.9063	0.25953	0.26676	0.51	0.255	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-15	TLS-SB-IA4-15 (2.2-3.2) 030110	ARS1-10-00469-016	GAM-A-020	U-234	0.40545	0.20262	0.2045	0.412	0.206	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-17	TLS-SB-IA4-19 (1.0-2.0) 03011	ARS1-10-00469-019	GAM-A-020	U-234	0.58069	0.36651	0.36907	0.533	0.2665	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-18	TLS-SB-IA4-19 (27.0-28.0) 03011	ARS1-10-00469-021	GAM-A-020	U-234	0.70808	0.21562	0.2218	0.397	0.1985	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-10	TLS-SB-IA4-7 (2.3-3.3) 03011	ARS1-10-00469-009	GAM-A-020	U-234	1.105	0.31364	0.32395	0.551	0.2755	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-12	TLS-SB-IA4-7 (24.0-25.0) 030110	ARS1-10-00469-012	GAM-A-020	U-234	1.027	0.262	0.27297	0.521	0.2605	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-11	TLS-SB-IA4-7 (3.3-4.3) 03011	ARS1-10-00469-010	GAM-A-020	U-234	0.82119	0.22586	0.23376	0.497	0.2485	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-08	TLS-SB-IA4-8 (26.2-27.2) 03011	ARS1-10-00469-004	GAM-A-020	U-234	0.77871	0.2193	0.22663	0.455	0.2275	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-13	TLS-SS-IA4-15 (0.7-1.2) 03011	ARS1-10-00469-013	GAM-A-020	U-234	0.85325	0.39549	0.40066	0.517	0.2585	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-16	TLS-SS-IA4-19 (0.5-1.0) 03011	ARS1-10-00469-018	GAM-A-020	U-234	0.81814	0.24811	0.25527	0.518	0.259	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-09	TLS-SS-IA4-7 (0.8-1.3) 03011	ARS1-10-00469-007	GAM-A-020	U-234	0.67262	0.33179	0.33562	0.431	0.2155	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-07	TLS-SS-IA4-8 (1.3-1.8) 03011	ARS1-10-00469-001	GAM-A-020	U-234	0.75509	0.25707	0.26298	0.473	0.2365	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-22	TLS-SB-IA4-2 (12.0-13.0) 03031	ARS1-10-00473-013	GAM-A-020	U-234	0.77691	0.20619	0.21287	0.469	0.2345	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-26	TLS-SB-IA4-1 (9.0-10.0) 03031	ARS1-10-00473-024	GAM-A-020	U-234	0.65404	0.21789	0.22239	0.484	0.242	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-23	TLS-SB-IA4-2 (13.0-14.0) 03031	ARS1-10-00473-014	GAM-A-020	U-234	0.89092	0.24535	0.25391	0.452	0.226	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-21	TLS-SB-IA4-2 (2.0-3.0) 03031	ARS1-10-00473-012	GAM-A-020	U-234	0.57838	0.18878	0.19284	0.402	0.201	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-25	TLS-SB-IA4-9 (17.3-18.3) 03031	ARS1-10-00473-020	GAM-A-020	U-234	0.92658	0.24863	0.25651	0.472	0.236	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-20	TLS-SS-IA4-2 (1.5-2.0) 03031	ARS1-10-00473-011	GAM-A-020	U-234	0.46795	0.21236	0.21512	0.407	0.2035	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-24	TLS-SS-IA4-9 (0.2-0.8) 03031	ARS1-10-00473-015	GAM-A-020	U-234	0.63099	0.23251	0.23708	0.48	0.24	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-14	TLS-SB-IA4-15 (1.2-2.2) 03011	ARS1-10-00469-014	GAM-A-020	U-235	-0.01607	0.12149	0.1215	0.145	0.0725	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-04	TLS-SB-IA4-14 (13.0-14.0) 03021	ARS1-10-00468-014	GAM-A-020	U-235	0.03442	0.097719	0.097747	0.165	0.0825	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-06	TLS-SB-IA4-18 (44.0-45.0) 03021	ARS1-10-00468-019	GAM-A-020	U-235	0.049815	0.099841	0.099899	0.168	0.084	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-05	TLS-SB-IA4-18 (9.0-10.0) 03021	ARS1-10-00468-016	GAM-A-020	U-235	0.061254	0.090338	0.090567	0.12	0.06	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-15	TLS-SB-IA4-15 (2.2-3.2) 030110	ARS1-10-00469-016	GAM-A-020	U-235	0.000916	0.062278	0.062278	0.0935	0.04675	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-17	TLS-SB-IA4-19 (1.0-2.0) 03011	ARS1-10-00469-019	GAM-A-020	U-235	0.031601	0.10252	0.10254	0.174	0.087	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-18	TLS-SB-IA4-19 (27.0-28.0) 03011	ARS1-10-00469-021	GAM-A-020	U-235	0.073387	0.086277	0.086423	0.143	0.0715	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-10	TLS-SB-IA4-7 (2.3-3.3) 03011	ARS1-10-00469-009	GAM-A-020	U-235	0.032146	0.10037	0.1004	0.17	0.085	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-12	TLS-SB-IA4-7 (24.0-25.0) 030110	ARS1-10-00469-012	GAM-A-020	U-235	0.10373	0.093013	0.093283	0.155	0.0775	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-11	TLS-SB-IA4-7 (3.3-4.3) 03011	ARS1-10-00469-010	GAM-A-020	U-235	0.073894	0.10383	0.10395	0.173	0.0865	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-08	TLS-SB-IA4-8 (26.2-27.2) 03011	ARS1-10-00469-004	GAM-A-020	U-235	0.042363	0.097196	0.097239	0.163	0.0815	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-13	TLS-SS-IA4-15 (0.7-1.2) 03011	ARS1-10-00469-013	GAM-A-020	U-235	0.051049	0.10969	0.10975	0.184	0.092	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-16	TLS-SS-IA4-19 (0.5-1.0) 03011	ARS1-10-00469-018	GAM-A-020	U-235	0.050842	0.094427	0.09449	0.159	0.0795	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-09	TLS-SS-IA4-7 (0.8-1.3) 03011	ARS1-10-00469-007	GAM-A-020	U-235	0.042511	0.086967	0.087015	0.147	0.0735	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-07	TLS-SS-IA4-8 (1.3-1.8) 03011	ARS1-10-00469-001	GAM-A-020	U-235	0.039535	0.09229	0.092329	0.157	0.0785	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-22	TLS-SB-IA4-2 (12.0-13.0) 03031	ARS1-10-00473-013	GAM-A-020	U-235	0.028813	0.066522	0.066591	0.1	0.05	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-26	TLS-SB-IA4-1 (9.0-10.0) 03031	ARS1-10-00473-024	GAM-A-020	U-235	0.04038	0.074286	0.074407	0.106	0.053	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-23	TLS-SB-IA4-2 (13.0-14.0) 03031	ARS1-10-00473-014	GAM-A-020	U-235	0.077959	0.094235	0.094385	0.156	0.078	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-21	TLS-SB-IA4-2 (2.0-3.0) 03031	ARS1-10-00473-012	GAM-A-020	U-235	0.055532	0.068854	0.069101	0.0952	0.0476	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-25	TLS-SB-IA4-9 (17.3-18.3) 03031	ARS1-10-00473-020	GAM-A-020	U-235	-0.00041	0.082259	0.082259	0.139	0.0695	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-20	TLS-SS-IA4-2 (1.5-2.0) 03031	ARS1-10-00473-011	GAM-A-020	U-235	-0.00257	0.085434	0.085434	0.141	0.0705	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-24	TLS-SS-IA4-9 (0.2-0.8) 03031	ARS1-10-00473-015	GAM-A-020	U-235	0.025136	0.085349	0.08537	0.128	0.064	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-14	TLS-SB-IA4-15 (1.2-2.2) 03011	ARS1-10-00469-014	GAM-A-020	U-238	0.64386	0.22893	0.23309	0.514	0.257	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-04	TLS-SB-IA4-14 (13.0-14.0) 03021	ARS1-10-00468-014	GAM-A-020	U-238	0.76757	0.32366	0.32877	0.448	0.224	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-06	TLS-SB-IA4-18 (44.0-45.0) 03021	ARS1-10-00468-019	GAM-A-020	U-238	0.761	0.22929	0.23621	0.486	0.243	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-05	TLS-SB-IA4-18 (9.0-10.0) 03021	ARS1-10-00468-016	GAM-A-020	U-238	0.9063	0.25953	0.26676	0.51	0.255	pCi	g	ARS1-B10-03586		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03586-15	TLS-SB-IA4-15 (2.2-3.2) 030110D	ARS1-10-00469-016	GAM-A-020	U-238	0.40545	0.20262	0.2045	0.412	0.206	pCi	g	ARS1-B10-03586		1	U	U				
ARS1-B10-03586-17	TLS-SB-IA4-19 (1.0-2.0) 03011C	ARS1-10-00469-019	GAM-A-020	U-238	0.58069	0.36651	0.36907	0.533	0.2665	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-18	TLS-SB-IA4-19 (27.0-28.0) 03011C	ARS1-10-00469-021	GAM-A-020	U-238	0.70808	0.21562	0.2218	0.397	0.1985	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-10	TLS-SB-IA4-7 (2.3-3.3) 03011C	ARS1-10-00469-009	GAM-A-020	U-238	1.105	0.31364	0.32395	0.551	0.2755	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-12	TLS-SB-IA4-7 (24.0-25.0) 030110D	ARS1-10-00469-012	GAM-A-020	U-238	1.027	0.262	0.27297	0.521	0.2605	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-11	TLS-SB-IA4-7 (3.3-4.3) 03011C	ARS1-10-00469-010	GAM-A-020	U-238	0.82119	0.22586	0.23376	0.497	0.2485	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-08	TLS-SB-IA4-8 (26.2-27.2) 03011C	ARS1-10-00469-004	GAM-A-020	U-238	0.77871	0.2193	0.22663	0.455	0.2275	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-13	TLS-SS-IA4-15 (0.7-1.2) 03011C	ARS1-10-00469-013	GAM-A-020	U-238	0.85325	0.39549	0.40066	0.517	0.2585	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-16	TLS-SS-IA4-19 (0.5-1.0) 03011C	ARS1-10-00469-018	GAM-A-020	U-238	0.81814	0.24811	0.25527	0.518	0.259	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-09	TLS-SS-IA4-7 (0.8-1.3) 03011C	ARS1-10-00469-007	GAM-A-020	U-238	0.67262	0.33179	0.33562	0.431	0.2155	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-07	TLS-SS-IA4-8 (1.3-1.8) 03011C	ARS1-10-00469-001	GAM-A-020	U-238	0.75509	0.25707	0.26298	0.473	0.2365	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-22	TLS-SB-IA4-2 (12.0-13.0) 030310	ARS1-10-00473-013	GAM-A-020	U-238	0.77691	0.20619	0.21287	0.469	0.2345	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-26	TLS-SB-IA4-1 (9.0-10.0) 03031C	ARS1-10-00473-024	GAM-A-020	U-238	0.65404	0.21789	0.22239	0.484	0.242	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-23	TLS-SB-IA4-2 (13.0-14.0) 03031C	ARS1-10-00473-014	GAM-A-020	U-238	0.89092	0.24535	0.25391	0.452	0.226	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-21	TLS-SB-IA4-2 (2.0-3.0) 03031C	ARS1-10-00473-012	GAM-A-020	U-238	0.57838	0.18878	0.19284	0.402	0.201	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-25	TLS-SB-IA4-9 (17.3-18.3) 03031C	ARS1-10-00473-020	GAM-A-020	U-238	0.92658	0.24863	0.25651	0.472	0.236	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-20	TLS-SS-IA4-2 (1.5-2.0) 03031C	ARS1-10-00473-011	GAM-A-020	U-238	0.46795	0.21236	0.21512	0.407	0.2035	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03586-24	TLS-SS-IA4-9 (0.2-0.8) 03031C	ARS1-10-00473-015	GAM-A-020	U-238	0.63099	0.23251	0.23708	0.48	0.24	pCi	g	ARS1-B10-03586		1						
ARS1-B10-03699-04	TLS-SB-IA4-3 (7.0-8.0) 03031C	ARS1-10-00473-008	GAM-A-020	AM-241	0.001088	0.03374	0.03374	0.0563	0.02815	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-06	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	GAM-A-020	AM-241	0.008286	0.030835	0.030839	0.0513	0.02565	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-07	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	GAM-A-020	AM-241	0.001874	0.033658	0.033659	0.0562	0.0281	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-05	TLS-SS-IA4-5 (0.7-1.2) 03031C	ARS1-10-00473-025	GAM-A-020	AM-241	0.006486	0.022581	0.022583	0.0378	0.0189	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-09	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	GAM-A-020	AM-241	0.038527	0.030393	0.030463	0.0497	0.02485	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-08	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	GAM-A-020	AM-241	0.006031	0.02484	0.024842	0.0415	0.02075	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-30	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	GAM-A-020	AM-241	0.017371	0.027597	0.027613	0.0456	0.0228	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-32	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	GAM-A-020	AM-241	-0.00764	0.025967	0.025969	0.0433	0.02165	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-22	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	GAM-A-020	AM-241	-0.01293	0.045135	0.04514	0.0428	0.0214	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-23	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	GAM-A-020	AM-241	-0.00447	0.019562	0.019564	0.0328	0.0164	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-27	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	GAM-A-020	AM-241	0.061286	0.036484	0.03663	0.0593	0.02965	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-28	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	GAM-A-020	AM-241	0.007424	0.022921	0.022925	0.0383	0.01915	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-29	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	GAM-A-020	AM-241	0.00712	0.017994	0.017999	0.03	0.015	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-26	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	GAM-A-020	AM-241	0.015814	0.026432	0.026445	0.0438	0.0219	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-36	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	GAM-A-020	AM-241	0.014601	0.031107	0.031117	0.0516	0.0258	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-37	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	GAM-A-020	AM-241	0.010607	0.032697	0.032702	0.0545	0.02725	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-38	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	GAM-A-020	AM-241	0.004685	0.028239	0.02824	0.047	0.0235	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-39	TLS-SB-IA4-B04 (39.0-40.0)03091C	ARS1-10-00559-036	GAM-A-020	AM-241	0.019049	0.029026	0.029045	0.048	0.024	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-35	TLS-SB-IA4-BO1 (38.1-39.1)030910	ARS1-10-00559-005	GAM-A-020	AM-241	0.029379	0.03055	0.03059	0.0502	0.0251	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-33	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	GAM-A-020	AM-241	0.012715	0.032844	0.032849	0.0545	0.02725	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-34	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	GAM-A-020	AM-241	0.018335	0.031586	0.031602	0.0523	0.02615	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-04	TLS-SB-IA4-3 (7.0-8.0) 03031C	ARS1-10-00473-008	GAM-A-020	RA-226	1.4779	0.42935	0.45569	0.495	0.2475	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-06	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	GAM-A-020	RA-226	1.7018	0.49117	0.49815	0.574	0.287	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-07	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	GAM-A-020	RA-226	1.8114	0.40527	0.41482	0.549	0.2745	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-05	TLS-SS-IA4-5 (0.7-1.2) 03031C	ARS1-10-00473-025	GAM-A-020	RA-226	0.804	0.3269	0.33063	0.457	0.2285	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-09	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	GAM-A-020	RA-226	1.4446	0.37639	0.38328	0.559	0.2795	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-08	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	GAM-A-020	RA-226	0.97288	0.40248	0.40647	0.587	0.2935	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-30	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	GAM-A-020	RA-226	1.3141	0.71324	0.71627	0.594	0.297	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-32	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	GAM-A-020	RA-226	0.78285	0.28991	0.30098	0.4	0.2	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-22	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	GAM-A-020	RA-226	1.2175	0.38347	0.39074	0.521	0.2605	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-23	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	GAM-A-020	RA-226	1.5421	0.36404	0.37174	0.495	0.2475	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-27	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	GAM-A-020	RA-226	2.0762	0.75456	0.76169	0.643	0.3215	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-28	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	GAM-A-020	RA-226	0.84604	0.36146	0.36394	0.462	0.231	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-29	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	GAM-A-020	RA-226	1.1058	0.5381	0.5408	0.539	0.2695	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-26	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	GAM-A-020	RA-226	1.204	0.44748	0.45296	0.588	0.294	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-36	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	GAM-A-020	RA-226	1.8878	0.51493	0.52313	0.594	0.297	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-37	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	GAM-A-020	RA-226	2.8497	0.55851	0.57651	0.613	0.3065	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-38	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	GAM-A-020	RA-226	1.0832	0.34072	0.35863	0.406	0.203	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-39	TLS-SB-IA4-B04 (39.0-40.0)03091C	ARS1-10-00559-036	GAM-A-020	RA-226	1.6438	0.42405	0.43159	0.52	0.26	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-35	TLS-SB-IA4-BO1 (38.1-39.1)030910	ARS1-10-00559-005	GAM-A-020	RA-226	1.245	0.42929	0.43379	0.552	0.276	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-33	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	GAM-A-020	RA-226	1.0506	0.39379	0.40848	0.492	0.246	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-34	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	GAM-A-020	RA-226	2.0152	0.45536	0.46589	0.578	0.289	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-04	TLS-SB-IA4-3 (7.0-8.0) 03031C	ARS1-10-00473-008	GAM-A-020	RA-228	0.81143	0.084266	0.10281	0.1	0.05	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-06	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	GAM-A-020	RA-228	0.75594	0.07978	0.092157	0.0943	0.04715	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-07	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	GAM-A-020	RA-228	0.93972	0.075362	0.094699	0.0962	0.0481	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-05	TLS-SS-IA4-5 (0.7-1.2) 03031C	ARS1-10-00473-025	GAM-A-020	RA-228	0.39803	0.067237	0.071645	0.0833	0.04165	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-09	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	GAM-A-020	RA-228	0.63874	0.089465	0.097458	0.0875	0.04375	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-08	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	GAM-A-020	RA-228	0.5879	0.079919	0.088309	0.101	0.0505	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-30	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	GAM-A-020	RA-228	0.49289	0.058017	0.065235	0.0782	0.0391	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-32	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	GAM-A-020	RA-228	0.56345	0.072325	0.083087	0.0897	0.04485	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-22	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	GAM-A-020	RA-228	0.6369	0.12594	0.13202	0.105	0.0525	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-23	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	GAM-A-020	RA-228	0.64127	0.084073	0.092733	0.0943	0.04715	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-27	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	GAM-A-020	RA-228	0.70544	0.072346	0.084001	0.0848	0.0424	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-28	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	GAM-A-020	RA-228	0.39803	0.05922	0.064094	0.0711	0.03555	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-29	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	GAM-A-020	RA-228	0.55094	0.072719	0.080114	0.0898	0.0449	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-26	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	GAM-A-020	RA-228	0.51784	0.064851	0.072806	0.0916	0.0458	pCi	g	ARS1-B10-03699		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03699-36	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	GAM-A-020	RA-228	0.89045	0.089776	0.10494	0.0923	0.04615	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-37	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	GAM-A-020	RA-228	1.1803	0.088059	0.11419	0.0833	0.04165	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-38	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	GAM-A-020	RA-228	0.72525	0.089921	0.1042	0.081	0.0405	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-39	TLS-SB-IA4-B04 (39.0-40.0)03091C	ARS1-10-00559-036	GAM-A-020	RA-228	0.78756	0.10808	0.11828	0.0914	0.0457	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-35	TLS-SB-IA4-BO1 (38.1-39.1)03091C	ARS1-10-00559-005	GAM-A-020	RA-228	0.66557	0.073129	0.083486	0.0813	0.04065	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-33	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	GAM-A-020	RA-228	0.86723	0.077664	0.099969	0.0856	0.0428	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-34	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	GAM-A-020	RA-228	0.81564	0.1058	0.11692	0.0903	0.04515	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-04	TLS-SB-IA4-3 (7.0-8.0) 03031C	ARS1-10-00473-008	GAM-A-020	U-234	0.96612	0.27295	0.28077	0.535	0.2675	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-06	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	GAM-A-020	U-234	0.66227	0.2904	0.29464	0.424	0.212	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-07	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	GAM-A-020	U-234	1.2844	0.31262	0.32652	0.567	0.2835	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-05	TLS-SS-IA4-5 (0.7-1.2) 03031C	ARS1-10-00473-025	GAM-A-020	U-234	0.65069	0.20583	0.21114	0.356	0.178	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-09	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	GAM-A-020	U-234	0.85577	0.23017	0.23886	0.499	0.2495	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-08	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	GAM-A-020	U-234	0.702	0.23027	0.23596	0.433	0.2165	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-30	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	GAM-A-020	U-234	0.70535	0.23778	0.24354	0.5	0.25	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-32	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	GAM-A-020	U-234	0.68278	0.26047	0.26459	0.491	0.2455	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-22	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	GAM-A-020	U-234	0.7035	0.19085	0.19751	0.382	0.191	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-23	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	GAM-A-020	U-234	0.77771	0.27758	0.28367	0.386	0.193	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-27	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	GAM-A-020	U-234	1.6647	0.3276	0.35034	0.633	0.3165	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-28	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	GAM-A-020	U-234	0.42301	0.18793	0.19048	0.355	0.1775	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-29	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	GAM-A-020	U-234	0.62865	0.29946	0.30317	0.384	0.192	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-26	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	GAM-A-020	U-234	0.61779	0.26389	0.26776	0.448	0.224	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-36	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	GAM-A-020	U-234	0.64967	0.31153	0.31534	0.44	0.22	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-37	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	GAM-A-020	U-234	1.2487	0.34234	0.35439	0.532	0.266	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-38	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	GAM-A-020	U-234	0.39685	0.25617	0.25759	0.388	0.194	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-39	TLS-SB-IA4-B04 (39.0-40.0)03091C	ARS1-10-00559-036	GAM-A-020	U-234	0.77268	0.3293	0.33439	0.439	0.2195	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-35	TLS-SB-IA4-BO1 (38.1-39.1)03091C	ARS1-10-00559-005	GAM-A-020	U-234	0.84853	0.21846	0.22745	0.474	0.237	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-33	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	GAM-A-020	U-234	1.0975	0.2821	0.29183	0.536	0.268	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-34	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	GAM-A-020	U-234	0.62086	0.2887	0.29245	0.436	0.218	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-04	TLS-SB-IA4-3 (7.0-8.0) 03031C	ARS1-10-00473-008	GAM-A-020	U-235	0.040993	0.080872	0.080987	0.137	0.0685	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-06	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	GAM-A-020	U-235	0.064245	0.097557	0.097655	0.163	0.0815	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-07	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	GAM-A-020	U-235	0.06648	0.10785	0.10794	0.181	0.0905	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-05	TLS-SS-IA4-5 (0.7-1.2) 03031C	ARS1-10-00473-025	GAM-A-020	U-235	0.019594	0.08217	0.082188	0.139	0.0695	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-09	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	GAM-A-020	U-235	0.006864	0.098975	0.098977	0.168	0.084	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-08	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	GAM-A-020	U-235	0.070731	0.1044	0.10453	0.136	0.068	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-30	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	GAM-A-020	U-235	0.052048	0.090302	0.090372	0.153	0.0765	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-32	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	GAM-A-020	U-235	0.030361	0.064688	0.064767	0.096	0.048	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-22	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	GAM-A-020	U-235	0.038188	0.086914	0.086978	0.146	0.073	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-23	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	GAM-A-020	U-235	0.062641	0.084772	0.084878	0.142	0.071	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-27	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	GAM-A-020	U-235	0.062153	0.10681	0.10689	0.18	0.09	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-28	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	GAM-A-020	U-235	0.049272	0.082057	0.082126	0.137	0.0685	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-29	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	GAM-A-020	U-235	0.035208	0.076707	0.076744	0.13	0.065	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-26	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	GAM-A-020	U-235	0.018306	0.079943	0.079955	0.121	0.0605	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-36	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	GAM-A-020	U-235	0.027819	0.10159	0.10161	0.171	0.0855	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-37	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	GAM-A-020	U-235	0.072915	0.12092	0.12103	0.201	0.1005	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-38	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	GAM-A-020	U-235	-0.00862	0.093422	0.093426	0.123	0.0615	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-39	TLS-SB-IA4-B04 (39.0-40.0)03091C	ARS1-10-00559-036	GAM-A-020	U-235	0.045215	0.096033	0.096082	0.161	0.0805	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-35	TLS-SB-IA4-BO1 (38.1-39.1)03091C	ARS1-10-00559-005	GAM-A-020	U-235	0.004957	0.090402	0.090403	0.154	0.077	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-33	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	GAM-A-020	U-235	0.028457	0.087618	0.087669	0.121	0.0605	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-34	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	GAM-A-020	U-235	0.072881	0.10804	0.10815	0.18	0.09	pCi	g	ARS1-B10-03699		1	U	U				
ARS1-B10-03699-04	TLS-SB-IA4-3 (7.0-8.0) 03031C	ARS1-10-00473-008	GAM-A-020	U-238	0.96612	0.27295	0.28077	0.535	0.2675	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-06	TLS-SB-IA4-5 (1.2-2.2) 03031C	ARS1-10-00473-026	GAM-A-020	U-238	0.66227	0.2904	0.29464	0.424	0.212	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-07	TLS-SB-IA4-5 (9.0-10.0) 03031C	ARS1-10-00473-029	GAM-A-020	U-238	1.2844	0.31262	0.32652	0.567	0.2835	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-05	TLS-SS-IA4-5 (0.7-1.2) 03031C	ARS1-10-00473-025	GAM-A-020	U-238	0.65069	0.20583	0.21114	0.356	0.178	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-09	TLS-SB-IA4-6 (15.0-16.0)03041C	ARS1-10-00492-003	GAM-A-020	U-238	0.85577	0.23017	0.23886	0.499	0.2495	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-08	TLS-SS-IA4-6 (0.0-0.5)03041C	ARS1-10-00492-001	GAM-A-020	U-238	0.702	0.23027	0.23596	0.433	0.2165	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-30	TLS-SB-IA6-15 (2.0-3.0) 03081C	ARS1-10-00511-016	GAM-A-020	U-238	0.70535	0.23778	0.24354	0.5	0.25	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-32	TLS-SB-IA6-15 (9.7-10.0/14.3-15.0) 0308	ARS1-10-00511-018	GAM-A-020	U-238	0.68278	0.26047	0.26459	0.491	0.2455	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-22	TLS-SB-IA6-16 (7.0-8.0) 03081C	ARS1-10-00511-003	GAM-A-020	U-238	0.7035	0.19085	0.19751	0.382	0.191	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-23	TLS-SB-IA6-16 (7.0-8.0) 030810D	ARS1-10-00511-004	GAM-A-020	U-238	0.77771	0.27758	0.28367	0.386	0.193	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-27	TLS-SB-IA6-17 (7.0-8.0) 03081C	ARS1-10-00511-013	GAM-A-020	U-238	1.6647	0.3276	0.35034	0.633	0.3165	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-28	TLS-SB-IA6-17 (9.0-10.0) 03081C	ARS1-10-00511-014	GAM-A-020	U-238	0.42301	0.18793	0.19048	0.355	0.1775	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-29	TLS-SS-IA6-15 (1.0-1.5) 03081C	ARS1-10-00511-015	GAM-A-020	U-238	0.62865	0.29946	0.30317	0.384	0.192	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-26	TLS-SS-IA6-17 (2.0-2.5) 03081C	ARS1-10-00511-011	GAM-A-020	U-238	0.61779	0.26389	0.26776	0.448	0.224	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-36	TLS-SB-IA4-B03 (14.0-15.0)03091C	ARS1-10-00559-018	GAM-A-020	U-238	0.64967	0.31153	0.31534	0.44	0.22	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-37	TLS-SB-IA4-B03 (17.6-18.6)03091C	ARS1-10-00559-019	GAM-A-020	U-238	1.2487	0.34234	0.35439	0.532	0.266	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-38	TLS-SB-IA4-B03 (33.8-34.8)03091C	ARS1-10-00559-021	GAM-A-020	U-238	0.39685	0.25617	0.25759	0.388	0.194	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-39	TLS-SB-IA4-B04 (39.0-40.0)03091C	ARS1-10-00559-036	GAM-A-020	U-238	0.77268	0.3293	0.33439	0.439	0.2195	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-35	TLS-SB-IA4-BO1 (38.1-39.1)03091C	ARS1-10-00559-005	GAM-A-020	U-238	0.84853	0.21846	0.22745	0.474	0.237	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-33	TLS-SB-IA4-BO1 (4.0-5.0)03091C	ARS1-10-00559-002	GAM-A-020	U-238	1.0975	0.2821	0.29183	0.536	0.268	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03699-34	TLS-SB-IA4-BO1 (4.0-5.0)030910D	ARS1-10-00559-003	GAM-A-020	U-238	0.62086	0.2887	0.29245	0.436	0.218	pCi	g	ARS1-B10-03699		1						
ARS1-B10-03705-04	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	GAM-A-020	AM-241	-0.00068	0.020352	0.020352	0.0339	0.01695	pCi	g	ARS1-B10-03705		1	U	U				
ARS1-B10-03705-05	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	GAM-A-020	AM-241	0.012339	0.023681	0.02369	0.0392	0.0196	pCi	g	ARS1-B10-03705		1	U	U				
ARS1-B10-03705-04	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	GAM-A-020	RA-226	1.4765	0.30142	0.30993	0.38	0.19	pCi	g	ARS1-B10-03705		1						
ARS1-B10-03705-05	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	GAM-A-020	RA-226	1.5811	0.4155	0.42298	0.403	0.2015	pCi	g	ARS1-B10-03705		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03705-04	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	GAM-A-020	RA-228	0.73702	0.056904	0.072533	0.0728	0.0364	pCi	g	ARS1-B10-03705		1						
ARS1-B10-03705-05	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	GAM-A-020	RA-228	0.64706	0.06808	0.078888	0.0819	0.04095	pCi	g	ARS1-B10-03705		1						
ARS1-B10-03705-04	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	GAM-A-020	U-234	0.51224	0.22293	0.22624	0.317	0.1585	pCi	g	ARS1-B10-03705		1						
ARS1-B10-03705-05	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	GAM-A-020	U-234	0.52742	0.18619	0.19017	0.339	0.1695	pCi	g	ARS1-B10-03705		1						
ARS1-B10-03705-04	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	GAM-A-020	U-235	0.070778	0.0719	0.072061	0.119	0.0595	pCi	g	ARS1-B10-03705		1	U	U				
ARS1-B10-03705-05	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	GAM-A-020	U-235	0.040026	0.06812	0.068175	0.115	0.0575	pCi	g	ARS1-B10-03705		1	U	U				
ARS1-B10-03705-04	TLS-SB-IA4-22(1.5-2.5)02181C	ARS1-10-00311-035	GAM-A-020	U-238	0.51224	0.22293	0.22624	0.317	0.1585	pCi	g	ARS1-B10-03705		1						
ARS1-B10-03705-05	TLS-SS-IA4-21(0.0-0.5)02181C	ARS1-10-00311-044	GAM-A-020	U-238	0.52742	0.18619	0.19017	0.339	0.1695	pCi	g	ARS1-B10-03705		1						
ARS1-B10-03713-04	TLS-SB-IA4-B02 (13.0-14.0)03091C	ARS1-10-00559-043	GAM-A-020	AM-241	0.00156	0.03195	0.03195	0.0533	0.02665	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-05	TLS-SB-IA4-B02 (46.4-47.4)03091C	ARS1-10-00559-045	GAM-A-020	AM-241	-0.00251	0.029021	0.029021	0.0484	0.0242	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-06	TLS-SB-IA4-B02 (49.0-50.0)03091C	ARS1-10-00559-046	GAM-A-020	AM-241	0.009414	0.023726	0.023731	0.0395	0.01975	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-14	TLS-SB-IA4-B05 (3.0-4.0)03101C	ARS1-10-00560-036	GAM-A-020	AM-241	0.010868	0.034401	0.034406	0.0572	0.0286	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-15	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	GAM-A-020	AM-241	0.00148	0.034353	0.034353	0.0575	0.02875	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	GAM-A-020	AM-241	0.001556	0.038164	0.038164	0.0637	0.03185	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-19	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	GAM-A-020	AM-241	-0.01049	0.12418	0.12418	0.0707	0.03535	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-21	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	GAM-A-020	AM-241	0.009988	0.039669	0.039672	0.066	0.033	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-36	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	GAM-A-020	AM-241	-0.00102	0.036164	0.036164	0.0604	0.0302	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-04	TLS-SB-IA4-B02 (13.0-14.0)03091C	ARS1-10-00559-043	GAM-A-020	RA-226	1.5151	0.58469	0.58959	0.616	0.308	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-05	TLS-SB-IA4-B02 (46.4-47.4)03091C	ARS1-10-00559-045	GAM-A-020	RA-226	1.1365	0.31646	0.32129	0.526	0.263	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-06	TLS-SB-IA4-B02 (49.0-50.0)03091C	ARS1-10-00559-046	GAM-A-020	RA-226	0.94939	0.36895	0.372	0.45	0.225	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-14	TLS-SB-IA4-B05 (3.0-4.0)03101C	ARS1-10-00560-036	GAM-A-020	RA-226	1.9647	0.47625	0.48582	0.606	0.303	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-15	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	GAM-A-020	RA-226	1.2671	0.48816	0.50541	0.544	0.272	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	GAM-A-020	RA-226	2.2994	0.52835	0.54016	0.686	0.343	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-19	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	GAM-A-020	RA-226	1.8687	0.76456	0.77028	0.88	0.44	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-21	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	GAM-A-020	RA-226	1.2213	0.49276	0.50866	0.595	0.2975	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-36	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	GAM-A-020	RA-226	1.9295	0.52966	0.53839	0.754	0.377	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-04	TLS-SB-IA4-B02 (13.0-14.0)03091C	ARS1-10-00559-043	GAM-A-020	RA-228	0.87917	0.069981	0.087908	0.0975	0.04875	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-05	TLS-SB-IA4-B02 (46.4-47.4)03091C	ARS1-10-00559-045	GAM-A-020	RA-228	0.72072	0.08413	0.094932	0.0789	0.03945	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-06	TLS-SB-IA4-B02 (49.0-50.0)03091C	ARS1-10-00559-046	GAM-A-020	RA-228	0.58319	0.069159	0.077932	0.0604	0.0302	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-14	TLS-SB-IA4-B05 (3.0-4.0)03101C	ARS1-10-00560-036	GAM-A-020	RA-228	0.98384	0.098651	0.11549	0.11	0.055	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-15	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	GAM-A-020	RA-228	1.06	0.12542	0.14713	0.107	0.0535	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	GAM-A-020	RA-228	1.1082	0.1063	0.12599	0.106	0.053	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-19	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	GAM-A-020	RA-228	1.2088	0.14741	0.16515	0.133	0.0665	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-21	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	GAM-A-020	RA-228	0.97979	0.12513	0.14393	0.107	0.0535	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-36	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	GAM-A-020	RA-228	0.85386	0.089025	0.10293	0.106	0.053	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-04	TLS-SB-IA4-B02 (13.0-14.0)03091C	ARS1-10-00559-043	GAM-A-020	U-234	0.64971	0.35794	0.36121	0.498	0.249	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-05	TLS-SB-IA4-B02 (46.4-47.4)03091C	ARS1-10-00559-045	GAM-A-020	U-234	0.85422	0.26942	0.27661	0.474	0.237	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-06	TLS-SB-IA4-B02 (49.0-50.0)03091C	ARS1-10-00559-046	GAM-A-020	U-234	0.57147	0.19921	0.20357	0.366	0.183	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-14	TLS-SB-IA4-B05 (3.0-4.0)03101C	ARS1-10-00560-036	GAM-A-020	U-234	0.99348	0.25938	0.26992	0.524	0.262	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-15	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	GAM-A-020	U-234	0.94506	0.29613	0.30303	0.561	0.2805	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	GAM-A-020	U-234	1.0007	0.27853	0.28805	0.594	0.297	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-19	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	GAM-A-020	U-234	1.1185	0.34278	0.35247	0.617	0.3085	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-21	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	GAM-A-020	U-234	0.074445	0.0262	0.02674	0.0247	0.01235	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-36	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	GAM-A-020	U-234	1.2376	0.35707	0.36881	0.686	0.343	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-04	TLS-SB-IA4-B02 (13.0-14.0)03091C	ARS1-10-00559-043	GAM-A-020	U-235	0.045034	0.1033	0.10335	0.174	0.087	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-05	TLS-SB-IA4-B02 (46.4-47.4)03091C	ARS1-10-00559-045	GAM-A-020	U-235	0.057363	0.088273	0.088359	0.148	0.074	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-06	TLS-SB-IA4-B02 (49.0-50.0)03091C	ARS1-10-00559-046	GAM-A-020	U-235	0.023828	0.078648	0.078665	0.132	0.066	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-14	TLS-SB-IA4-B05 (3.0-4.0)03101C	ARS1-10-00560-036	GAM-A-020	U-235	0.034152	0.11048	0.11051	0.186	0.093	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-15	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	GAM-A-020	U-235	0.005859	0.095679	0.095681	0.163	0.0815	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	GAM-A-020	U-235	0.086366	0.1163	0.11645	0.194	0.097	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-19	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	GAM-A-020	U-235	0.063067	0.14301	0.14307	0.239	0.1195	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-21	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	GAM-A-020	U-235	-0.03027	0.18392	0.18395	0.17	0.085	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-36	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	GAM-A-020	U-235	0.014508	0.12409	0.12409	0.211	0.1055	pCi	g	ARS1-B10-03713		1	U	U				
ARS1-B10-03713-04	TLS-SB-IA4-B02 (13.0-14.0)03091C	ARS1-10-00559-043	GAM-A-020	U-238	0.64971	0.35794	0.36121	0.498	0.249	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-05	TLS-SB-IA4-B02 (46.4-47.4)03091C	ARS1-10-00559-045	GAM-A-020	U-238	0.85422	0.26942	0.27661	0.474	0.237	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-06	TLS-SB-IA4-B02 (49.0-50.0)03091C	ARS1-10-00559-046	GAM-A-020	U-238	0.57147	0.19921	0.20357	0.366	0.183	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-14	TLS-SB-IA4-B05 (3.0-4.0)03101C	ARS1-10-00560-036	GAM-A-020	U-238	0.99348	0.25938	0.26992	0.524	0.262	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-15	TLS-SB-IA4-B05 (5.9-6.9)03101C	ARS1-10-00560-037	GAM-A-020	U-238	0.94506	0.29613	0.30303	0.561	0.2805	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-10	TLS-SB-IA6-B01 (2.0-3.0)03101C	ARS1-10-00560-022	GAM-A-020	U-238	1.0007	0.27853	0.28805	0.594	0.297	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-19	TLS-SB-IA6-12 (13.0-14.0)03161C	ARS1-10-00591-003	GAM-A-020	U-238	1.1185	0.34278	0.35247	0.617	0.3085	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-21	TLS-SB-IA6-12 (17.0-18.0)03161C	ARS1-10-00591-005	GAM-A-020	U-238	1.0013	0.27317	0.28155	0.64	0.32	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03713-36	TLS-SB-IA6-10 (12.0-13.0)03171C	ARS1-10-00600-007	GAM-A-020	U-238	1.2376	0.35707	0.36881	0.686	0.343	pCi	g	ARS1-B10-03713		1						
ARS1-B10-03718-05	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	GAM-A-020	AM-241	0.24072	0.05426	0.055759	0.0643	0.03215	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-10	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	GAM-A-020	AM-241	0.27667	0.049956	0.051999	0.057	0.0285	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-08	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	GAM-A-020	AM-241	0.008307	0.035743	0.035745	0.0596	0.0298	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-09	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	GAM-A-020	AM-241	0.010678	0.03008	0.030085	0.05	0.025	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-11	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	GAM-A-020	AM-241	0.35966	0.044225	0.048291	0.0483	0.02415	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-14	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	GAM-A-020	AM-241	0.014068	0.047353	0.047359	0.0791	0.03955	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-25	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	GAM-A-020	AM-241	-0.01554	0.029975	0.029987	0.0497	0.02485	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-23	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	GAM-A-020	AM-241	0.020082	0.032852	0.03287	0.0544	0.0272	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-26	TLS-SB-IA6-5 (23.0-24.0)03181ODC	ARS1-10-00609-042	GAM-A-020	AM-241	0.006712	0.040507	0.040509	0.0675	0.03375	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-20	TLS-SB-IA6-6 (18.0-19.0)03181ODC	ARS1-10-00609-029	GAM-A-020	AM-241	0.1275	0.060306	0.060689	0.074	0.037	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-19	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	GAM-A-020	AM-241	-0.00514	1.0536	1.0536	0.0621	0.03105	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-15	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	GAM-A-020	AM-241	0.071088	0.046769	0.046916	0.061	0.0305	pCi	g	ARS1-B10-03718		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03718-24	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	GAM-A-020	AM-241	0.022521	0.039618	0.039636	0.0658	0.0329	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-17	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	GAM-A-020	AM-241	-0.01051	0.037317	0.037321	0.062	0.031	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-05	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	GAM-A-020	RA-226	2.151	0.61812	0.62743	0.824	0.412	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-10	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	GAM-A-020	RA-226	-0.92933	1.849	1.8495	0.74	0.37	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-08	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	GAM-A-020	RA-226	1.7612	0.59859	0.60507	0.688	0.344	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-09	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	GAM-A-020	RA-226	1.4539	0.47445	0.48	0.707	0.3535	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-11	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	GAM-A-020	RA-226	1.3491	0.44946	0.45427	0.588	0.294	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-14	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	GAM-A-020	RA-226	1.7955	0.77103	0.776	0.981	0.4905	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-25	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	GAM-A-020	RA-226	1.5815	0.74303	0.74723	0.78	0.39	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-23	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	GAM-A-020	RA-226	2.0575	0.56614	0.57499	0.649	0.3245	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-26	TLS-SB-IA6-5 (23.0-24.0)031810D	ARS1-10-00609-042	GAM-A-020	RA-226	1.1458	0.39234	0.40981	0.547	0.2735	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-20	TLS-SB-IA6-6 (18.0-19.0)031810D	ARS1-10-00609-029	GAM-A-020	RA-226	2.4791	0.63987	0.6518	0.915	0.4575	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-19	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	GAM-A-020	RA-226	1.5705	0.61938	0.62437	0.791	0.3955	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-15	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	GAM-A-020	RA-226	1.9779	0.54166	0.55067	0.73	0.365	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-24	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	GAM-A-020	RA-226	1.8518	0.6872	0.69345	0.815	0.4075	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-17	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	GAM-A-020	RA-226	1.6218	0.58163	0.587	0.703	0.3515	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-05	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	GAM-A-020	RA-228	0.7199	0.09478	0.10431	0.108	0.054	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-10	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	GAM-A-020	RA-228	0.6881	0.10845	0.1163	0.108	0.054	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-08	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	GAM-A-020	RA-228	0.95884	0.11572	0.12992	0.0922	0.0461	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-09	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	GAM-A-020	RA-228	0.88836	0.097478	0.11132	0.0985	0.04925	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-11	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	GAM-A-020	RA-228	0.52768	0.075442	0.082027	0.0932	0.0466	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-14	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	GAM-A-020	RA-228	0.77303	0.12738	0.13584	0.154	0.077	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-25	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	GAM-A-020	RA-228	0.93041	0.091364	0.10732	0.103	0.0515	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-23	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	GAM-A-020	RA-228	0.77254	0.07709	0.090363	0.097	0.0485	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-26	TLS-SB-IA6-5 (23.0-24.0)031810D	ARS1-10-00609-042	GAM-A-020	RA-228	1.0752	0.13164	0.15304	0.126	0.063	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-20	TLS-SB-IA6-6 (18.0-19.0)031810D	ARS1-10-00609-029	GAM-A-020	RA-228	0.94453	0.11808	0.13119	0.115	0.0575	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-19	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	GAM-A-020	RA-228	0.59121	0.090466	0.09752	0.115	0.0575	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-15	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	GAM-A-020	RA-228	0.77207	0.09537	0.10657	0.127	0.0635	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-24	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	GAM-A-020	RA-228	0.77776	0.090691	0.10257	0.109	0.0545	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-17	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	GAM-A-020	RA-228	0.9625	0.098942	0.11506	0.111	0.0555	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-05	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	GAM-A-020	U-234	1.2502	0.3575	0.36946	0.742	0.371	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-10	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	GAM-A-020	U-234	0.80831	0.34055	0.34568	0.601	0.3005	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-08	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	GAM-A-020	U-234	1.2089	0.30357	0.31627	0.541	0.2705	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-09	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	GAM-A-020	U-234	1.3449	0.37185	0.38515	0.729	0.3645	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-11	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	GAM-A-020	U-234	0.67521	0.31094	0.31506	0.454	0.227	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-14	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	GAM-A-020	U-234	1.4622	0.4182	0.43242	0.796	0.398	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-25	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	GAM-A-020	U-234	1.1523	0.33548	0.34632	0.654	0.327	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-23	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	GAM-A-020	U-234	0.88391	0.25075	0.25941	0.457	0.2285	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-26	TLS-SB-IA6-5 (23.0-24.0)031810D	ARS1-10-00609-042	GAM-A-020	U-234	1.6133	0.34176	0.35897	0.648	0.324	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-20	TLS-SB-IA6-6 (18.0-19.0)031810D	ARS1-10-00609-029	GAM-A-020	U-234	1.9278	0.42923	0.45268	0.8	0.4	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-19	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	GAM-A-020	U-234	0.79236	0.25662	0.26312	0.508	0.254	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-15	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	GAM-A-020	U-234	1.4727	0.36382	0.37953	0.686	0.343	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-24	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	GAM-A-020	U-234	1.1828	0.32364	0.33507	0.592	0.296	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-17	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	GAM-A-020	U-234	0.93556	0.28966	0.29768	0.591	0.2955	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-05	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	GAM-A-020	U-235	0.070061	0.12671	0.1268	0.214	0.107	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-10	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	GAM-A-020	U-235	0.051657	0.10484	0.1049	0.177	0.0885	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-08	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	GAM-A-020	U-235	0.11595	0.1173	0.11757	0.194	0.097	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-09	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	GAM-A-020	U-235	0.08078	0.11828	0.11841	0.198	0.099	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-11	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	GAM-A-020	U-235	0.051711	0.10155	0.10161	0.171	0.0855	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-14	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	GAM-A-020	U-235	0.022944	0.15837	0.15838	0.271	0.1355	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-25	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	GAM-A-020	U-235	0.028712	0.1231	0.12312	0.208	0.104	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-23	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	GAM-A-020	U-235	0.054506	0.10867	0.10874	0.182	0.091	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-26	TLS-SB-IA6-5 (23.0-24.0)031810D	ARS1-10-00609-042	GAM-A-020	U-235	0.007569	0.10147	0.10147	0.173	0.0865	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-20	TLS-SB-IA6-6 (18.0-19.0)031810D	ARS1-10-00609-029	GAM-A-020	U-235	0.090915	0.14897	0.1491	0.251	0.1255	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-19	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	GAM-A-020	U-235	0.027077	0.12505	0.12507	0.211	0.1055	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-15	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	GAM-A-020	U-235	0.10154	0.14044	0.14061	0.234	0.117	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-24	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	GAM-A-020	U-235	0.097807	0.13413	0.1343	0.223	0.1115	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-17	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	GAM-A-020	U-235	0.084591	0.11287	0.11301	0.189	0.0945	pCi	g	ARS1-B10-03718		1	U	U				
ARS1-B10-03718-05	TLS-SB-IA6-14 (13.0-14.0)03171C	ARS1-10-00600-011	GAM-A-020	U-238	1.2502	0.3575	0.36946	0.742	0.371	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-10	TLS-SB-IA6-14 (16.4-17.4)03171C	ARS1-10-00600-012	GAM-A-020	U-238	0.80831	0.34055	0.34568	0.601	0.3005	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-08	TLS-SB-IA6-18 (22.0-23.0)03171C	ARS1-10-00600-022	GAM-A-020	U-238	1.2089	0.30357	0.31627	0.541	0.2705	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-09	TLS-SB-IA6-18 (25.0-26.0)03171C	ARS1-10-00600-023	GAM-A-020	U-238	1.3449	0.37185	0.38515	0.729	0.3645	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-11	TLS-SS-IA6-18 (4.0-4.5)03171C	ARS1-10-00600-020	GAM-A-020	U-238	0.67521	0.31094	0.31506	0.454	0.227	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-14	TLS-SB-IA6-19 (8.2-9.2)03181C	ARS1-10-00609-004	GAM-A-020	U-238	1.4622	0.4182	0.43242	0.796	0.398	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-25	TLS-SB-IA6-21 (3.5-4.5)03181C	ARS1-10-00609-036	GAM-A-020	U-238	1.1523	0.33548	0.34632	0.654	0.327	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-23	TLS-SB-IA6-22 (18.3-19.3)03181C	ARS1-10-00609-033	GAM-A-020	U-238	0.88391	0.25075	0.25941	0.457	0.2285	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-26	TLS-SB-IA6-5 (23.0-24.0)031810D	ARS1-10-00609-042	GAM-A-020	U-238	1.6133	0.34176	0.35897	0.648	0.324	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-20	TLS-SB-IA6-6 (18.0-19.0)031810D	ARS1-10-00609-029	GAM-A-020	U-238	1.9278	0.42923	0.45268	0.8	0.4	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-19	TLS-SB-IA6-9 (14.0-15.0)03181C	ARS1-10-00609-024	GAM-A-020	U-238	0.79236	0.25662	0.26312	0.508	0.254	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-15	TLS-SS-IA6-20 (1.5-2.0)03181C	ARS1-10-00609-017	GAM-A-020	U-238	1.4727	0.36382	0.37953	0.686	0.343	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-24	TLS-SS-IA6-21 (1.7-2.2)03181C	ARS1-10-00609-034	GAM-A-020	U-238	1.1828	0.32364	0.33507	0.592	0.296	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03718-17	TLS-SS-IA6-9 (3.5-4.0)03181C	ARS1-10-00609-021	GAM-A-020	U-238	0.93556	0.28966	0.29768	0.591	0.2955	pCi	g	ARS1-B10-03718		1						
ARS1-B10-03782-10	TLS-SB-IA6-1 (4.0-5.0)03191C	ARS1-10-00610-008	GAM-A-020	AM-241	0.018939	0.037968	0.037981	0.0631	0.03155	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-11	TLS-SB-IA6-1 (6.0-7.0)03191C	ARS1-10-00610-009	GAM-A-020	AM-241	-0.00034	0.036799	0.036799	0.0616	0.0308	pCi	g	ARS1-B10-03782		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03782-07	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	GAM-A-020	AM-241	-0.00534	0.041244	0.041245	0.0688	0.0344	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	GAM-A-020	AM-241	-0.0161	0.040363	0.040373	0.067	0.0335	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	GAM-A-020	AM-241	0.00815	0.034629	0.034632	0.0578	0.0289	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-08	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	GAM-A-020	AM-241	0.005634	0.035691	0.035692	0.0595	0.02975	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-14	TLS-SB-IA4-13 (6.4-7.4)033010	ARS1-10-00700-017	GAM-A-020	AM-241	0.015461	0.039615	0.039623	0.066	0.033	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-10	TLS-SB-IA6-1 (4.0-5.0)031910	ARS1-10-00610-008	GAM-A-020	RA-226	1.9443	0.65442	0.66164	0.754	0.377	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-11	TLS-SB-IA6-1 (6.0-7.0)031910	ARS1-10-00610-009	GAM-A-020	RA-226	1.1153	0.4421	0.45687	0.587	0.2935	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-07	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	GAM-A-020	RA-226	1.5514	0.46754	0.49425	0.612	0.306	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	GAM-A-020	RA-226	1.891	0.56779	0.57563	0.785	0.3925	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	GAM-A-020	RA-226	1.7489	0.54674	0.55338	0.664	0.332	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-08	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	GAM-A-020	RA-226	1.5932	0.51852	0.52433	0.648	0.324	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-14	TLS-SB-IA4-13 (6.4-7.4)033010	ARS1-10-00700-017	GAM-A-020	RA-226	1.551	0.43501	0.44191	0.712	0.356	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-10	TLS-SB-IA6-1 (4.0-5.0)031910	ARS1-10-00610-008	GAM-A-020	RA-228	0.80192	0.10444	0.11553	0.0922	0.0461	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-11	TLS-SB-IA6-1 (6.0-7.0)031910	ARS1-10-00610-009	GAM-A-020	RA-228	0.97805	0.097069	0.12026	0.116	0.058	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-07	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	GAM-A-020	RA-228	0.87832	0.085742	0.10684	0.118	0.059	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	GAM-A-020	RA-228	0.98095	0.10068	0.11687	0.107	0.0535	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	GAM-A-020	RA-228	0.63064	0.092729	0.1004	0.115	0.0575	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-08	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	GAM-A-020	RA-228	0.9479	0.12448	0.13727	0.108	0.054	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-14	TLS-SB-IA4-13 (6.4-7.4)033010	ARS1-10-00700-017	GAM-A-020	RA-228	0.81284	0.10905	0.12	0.115	0.0575	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-10	TLS-SB-IA6-1 (4.0-5.0)031910	ARS1-10-00610-008	GAM-A-020	U-234	1.0098	0.27872	0.28841	0.574	0.287	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-11	TLS-SB-IA6-1 (6.0-7.0)031910	ARS1-10-00610-009	GAM-A-020	U-234	1.0166	0.30826	0.31593	0.607	0.3035	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-07	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	GAM-A-020	U-234	1.2121	0.35114	0.36071	0.667	0.3335	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	GAM-A-020	U-234	1.3115	0.36967	0.3824	0.741	0.3705	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	GAM-A-020	U-234	0.80691	0.34025	0.34562	0.492	0.246	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-08	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	GAM-A-020	U-234	1.1986	0.28884	0.30258	0.574	0.287	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-14	TLS-SB-IA4-13 (6.4-7.4)033010	ARS1-10-00700-017	GAM-A-020	U-234	1.1837	0.37439	0.38433	0.683	0.3415	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-10	TLS-SB-IA6-1 (4.0-5.0)031910	ARS1-10-00610-008	GAM-A-020	U-235	0.068097	0.12503	0.12512	0.209	0.1045	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-11	TLS-SB-IA6-1 (6.0-7.0)031910	ARS1-10-00610-009	GAM-A-020	U-235	0.067785	0.12473	0.12493	0.155	0.0775	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-07	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	GAM-A-020	U-235	-0.02932	0.174	0.17403	0.174	0.087	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	GAM-A-020	U-235	0.12789	0.13189	0.13218	0.22	0.11	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	GAM-A-020	U-235	0.060874	0.11249	0.11257	0.189	0.0945	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-08	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	GAM-A-020	U-235	0.021742	0.11866	0.11867	0.2	0.1	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-14	TLS-SB-IA4-13 (6.4-7.4)033010	ARS1-10-00700-017	GAM-A-020	U-235	0.098655	0.13387	0.13403	0.223	0.1115	pCi	g	ARS1-B10-03782		1	U	U				
ARS1-B10-03782-10	TLS-SB-IA6-1 (4.0-5.0)031910	ARS1-10-00610-008	GAM-A-020	U-238	1.0098	0.27872	0.28841	0.574	0.287	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-11	TLS-SB-IA6-1 (6.0-7.0)031910	ARS1-10-00610-009	GAM-A-020	U-238	1.0166	0.30826	0.31593	0.607	0.3035	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-07	TLS-SB-IA6-3 (8.0-9.0)031910	ARS1-10-00610-004	GAM-A-020	U-238	1.2121	0.35114	0.36071	0.667	0.3335	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-09	TLS-SS-IA6-1 (3.0-3.5)03191C	ARS1-10-00610-007	GAM-A-020	U-238	1.3115	0.36967	0.3824	0.741	0.3705	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-12	TLS-SS-IA6-2 (3.7-4.2)03191C	ARS1-10-00610-010	GAM-A-020	U-238	0.80691	0.34025	0.34562	0.492	0.246	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-08	TLS-SS-IA6-4 (2.8-3.3)03191C	ARS1-10-00610-005	GAM-A-020	U-238	1.1986	0.28884	0.30258	0.574	0.287	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03782-14	TLS-SB-IA4-13 (6.4-7.4)033010	ARS1-10-00700-017	GAM-A-020	U-238	1.1837	0.37439	0.38433	0.683	0.3415	pCi	g	ARS1-B10-03782		1						
ARS1-B10-03806-16	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	GAM-A-020	AM-241	0.007137	0.035264	0.035266	0.0589	0.02945	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-15	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	GAM-A-020	AM-241	0.005219	0.025945	0.025946	0.0433	0.02165	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-14	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	GAM-A-020	AM-241	0.013798	0.031899	0.031907	0.0529	0.02645	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-13	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	GAM-A-020	AM-241	0.009316	0.028378	0.028382	0.0472	0.0236	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-12	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	GAM-A-020	AM-241	-0.00346	0.029937	0.029937	0.0501	0.02505	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-05	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	GAM-A-020	AM-241	0.004561	0.027297	0.027298	0.0455	0.02275	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-04	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	GAM-A-020	AM-241	0.000757	0.022905	0.022905	0.0384	0.0192	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-17	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	GAM-A-020	AM-241	0.013941	0.030566	0.030575	0.0507	0.02535	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-07	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	GAM-A-020	AM-241	0.009607	0.032531	0.032535	0.0541	0.02705	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-06	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	GAM-A-020	AM-241	-0.00815	0.079503	0.079504	0.0513	0.02565	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-10	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	GAM-A-020	AM-241	-0.01113	0.054313	0.054316	0.0495	0.02475	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-09	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	GAM-A-020	AM-241	0.007927	0.023271	0.023275	0.0386	0.0193	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-08	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	GAM-A-020	AM-241	0.002102	0.032079	0.032079	0.0536	0.0268	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-11	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	GAM-A-020	AM-241	0.010808	0.027515	0.02752	0.0457	0.02285	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-24	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	GAM-A-020	AM-241	0.010016	0.027857	0.027861	0.0466	0.0233	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-20	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	GAM-A-020	AM-241	0.009749	0.033997	0.034001	0.0565	0.02825	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-26	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	GAM-A-020	AM-241	0.006989	0.024758	0.024761	0.0411	0.02055	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-22	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	GAM-A-020	AM-241	-0.00439	0.24499	0.24499	0.0406	0.0203	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-18	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	GAM-A-020	AM-241	0.019905	0.033696	0.033712	0.0559	0.02795	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-23	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	GAM-A-020	AM-241	0.036484	0.02484	0.02491	0.0406	0.0203	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-25	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	GAM-A-020	AM-241	0.011859	0.022944	0.022952	0.038	0.019	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-19	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	GAM-A-020	AM-241	0.057861	0.037834	0.03796	0.0481	0.02405	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-21	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	GAM-A-020	AM-241	0.022124	0.036646	0.036662	0.0606	0.0303	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-16	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	GAM-A-020	RA-226	1.391	0.45567	0.46167	0.782	0.391	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-15	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	GAM-A-020	RA-226	1.6354	0.45592	0.46324	0.526	0.263	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-14	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	GAM-A-020	RA-226	1.6257	0.43681	0.44398	0.557	0.2785	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-13	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	GAM-A-020	RA-226	1.5181	0.46876	0.47459	0.543	0.2715	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-12	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	GAM-A-020	RA-226	1.6148	0.61789	0.62289	0.655	0.3275	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-05	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	GAM-A-020	RA-226	1.1744	0.30796	0.31326	0.51	0.255	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-04	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	GAM-A-020	RA-226	1.1526	0.35024	0.35498	0.429	0.2145	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-17	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	GAM-A-020	RA-226	1.9439	0.45289	0.46274	0.549	0.2745	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-07	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	GAM-A-020	RA-226	1.5685	0.37588	0.38361	0.618	0.309	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-06	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	GAM-A-020	RA-226	3.355	0.54712	0.5724	0.656	0.328	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-10	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	GAM-A-020	RA-226	1.1372	0.41377	0.41768	0.515	0.2575	pCi	g	ARS1-B10-03806		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03806-09	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	GAM-A-020	RA-226	1.7875	0.32827	0.33969	0.407	0.2035	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-08	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	GAM-A-020	RA-226	2.277	0.49761	0.50989	0.598	0.299	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-11	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	GAM-A-020	RA-226	1.252	0.31524	0.32112	0.519	0.2595	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-24	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	GAM-A-020	RA-226	2.1028	0.45051	0.46207	0.567	0.2835	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-20	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	GAM-A-020	RA-226	1.0964	0.38476	0.40108	0.479	0.2395	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-26	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	GAM-A-020	RA-226	1.5428	0.3372	0.34553	0.435	0.2175	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-22	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	GAM-A-020	RA-226	1.2064	0.35659	0.36425	0.529	0.2645	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-18	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	GAM-A-020	RA-226	1.2568	0.44748	0.4519	0.648	0.324	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-23	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	GAM-A-020	RA-226	1.5416	0.33766	0.35077	0.486	0.243	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-25	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	GAM-A-020	RA-226	1.1039	0.29514	0.30095	0.507	0.2535	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-19	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	GAM-A-020	RA-226	2.7666	0.58303	0.59926	0.604	0.302	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-21	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	GAM-A-020	RA-226	1.3376	0.41454	0.43697	0.517	0.2585	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-16	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	GAM-A-020	RA-228	0.73657	0.090607	0.10115	0.132	0.066	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-15	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	GAM-A-020	RA-228	0.73341	0.090153	0.10084	0.0782	0.0391	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-14	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	GAM-A-020	RA-228	1.0268	0.13566	0.14943	0.0996	0.0498	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-13	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	GAM-A-020	RA-228	0.7935	0.10729	0.11771	0.0945	0.04725	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-12	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	GAM-A-020	RA-228	0.88938	0.0925	0.10724	0.125	0.0625	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-05	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	GAM-A-020	RA-228	0.72048	0.056821	0.071845	0.0786	0.0393	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-04	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	GAM-A-020	RA-228	0.44682	0.0531	0.059809	0.0601	0.03005	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-17	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	GAM-A-020	RA-228	0.85551	0.084811	0.099592	0.0782	0.0391	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-07	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	GAM-A-020	RA-228	0.83008	0.066064	0.08325	0.0823	0.04115	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-06	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	GAM-A-020	RA-228	0.95198	0.081661	0.10053	0.102	0.051	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-10	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	GAM-A-020	RA-228	0.77172	0.06996	0.084581	0.0817	0.04085	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-09	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	GAM-A-020	RA-228	0.94224	0.08369	0.10154	0.0794	0.0397	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-08	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	GAM-A-020	RA-228	1.0489	0.11202	0.12902	0.0957	0.04785	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-11	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	GAM-A-020	RA-228	0.77493	0.063648	0.079293	0.0863	0.04315	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-24	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	GAM-A-020	RA-228	0.65406	0.097634	0.10548	0.0803	0.04015	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-20	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	GAM-A-020	RA-228	0.92811	0.11407	0.13248	0.103	0.0515	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-26	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	GAM-A-020	RA-228	0.91001	0.092523	0.10791	0.0616	0.0308	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-22	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	GAM-A-020	RA-228	0.73114	0.081632	0.093431	0.0995	0.04975	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-18	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	GAM-A-020	RA-228	0.54676	0.073624	0.080961	0.0892	0.0446	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-23	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	GAM-A-020	RA-228	0.68385	0.088047	0.097772	0.0832	0.0416	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-25	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	GAM-A-020	RA-228	0.7204	0.088575	0.098887	0.113	0.0565	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-19	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	GAM-A-020	RA-228	1.1271	0.086751	0.11035	0.0864	0.0432	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-21	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	GAM-A-020	RA-228	0.83504	0.083491	0.10317	0.0993	0.04965	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-16	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	GAM-A-020	U-234	1.0673	0.35453	0.36308	0.645	0.3225	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-15	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	GAM-A-020	U-234	0.68548	0.21532	0.22112	0.389	0.1945	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-14	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	GAM-A-020	U-234	0.62521	0.27957	0.2835	0.417	0.2085	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-13	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	GAM-A-020	U-234	0.83421	0.21322	0.22225	0.388	0.194	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-12	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	GAM-A-020	U-234	0.76233	0.3624	0.3669	0.493	0.2465	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-05	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	GAM-A-020	U-234	0.69926	0.23947	0.2449	0.433	0.2165	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-04	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	GAM-A-020	U-234	0.53537	0.18856	0.19261	0.358	0.179	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-17	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	GAM-A-020	U-234	1.0052	0.248	0.25927	0.471	0.2355	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-07	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	GAM-A-020	U-234	1.1731	0.33256	0.34352	0.569	0.2845	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-06	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	GAM-A-020	U-234	1.715	0.26505	0.29341	0.476	0.238	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-10	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	GAM-A-020	U-234	0.6836	0.25898	0.26379	0.433	0.2165	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-09	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	GAM-A-020	U-234	0.63178	0.24982	0.2543	0.342	0.171	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-08	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	GAM-A-020	U-234	1.1115	0.36015	0.36972	0.485	0.2425	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-11	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	GAM-A-020	U-234	0.93732	0.26048	0.26941	0.467	0.2335	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-24	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	GAM-A-020	U-234	1.384	0.35594	0.37015	0.492	0.246	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-20	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	GAM-A-020	U-234	0.86547	0.29209	0.29797	0.555	0.2775	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-26	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	GAM-A-020	U-234	0.7391	0.26534	0.27109	0.365	0.1825	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-22	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	GAM-A-020	U-234	0.90436	0.2524	0.26073	0.455	0.2275	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-18	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	GAM-A-020	U-234	0.72301	0.22443	0.23061	0.481	0.2405	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-23	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	GAM-A-020	U-234	0.81754	0.17245	0.18231	0.348	0.174	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-25	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	GAM-A-020	U-234	0.55038	0.31252	0.31512	0.432	0.216	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-19	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	GAM-A-020	U-234	1.0173	0.42157	0.42834	0.553	0.2765	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-21	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	GAM-A-020	U-234	0.88102	0.26895	0.27555	0.554	0.277	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-16	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	GAM-A-020	U-235	0.073497	0.11749	0.11761	0.199	0.0995	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-15	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	GAM-A-020	U-235	0.078036	0.090702	0.090859	0.15	0.075	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-14	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	GAM-A-020	U-235	0.049007	0.10472	0.10477	0.175	0.0875	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-13	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	GAM-A-020	U-235	0.043964	0.093923	0.09397	0.157	0.0785	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-12	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	GAM-A-020	U-235	0.066962	0.10617	0.10627	0.178	0.089	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-05	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	GAM-A-020	U-235	0.038617	0.086129	0.086169	0.145	0.0725	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-04	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	GAM-A-020	U-235	0.025434	0.077533	0.077553	0.13	0.065	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-17	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	GAM-A-020	U-235	0.072982	0.098739	0.098863	0.164	0.082	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-07	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	GAM-A-020	U-235	0.062319	0.099846	0.099936	0.168	0.084	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-06	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	GAM-A-020	U-235	0.086387	0.11255	0.1127	0.187	0.0935	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-10	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	GAM-A-020	U-235	0.027999	0.092245	0.092265	0.155	0.0775	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-09	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	GAM-A-020	U-235	0.042096	0.076918	0.076972	0.128	0.064	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-08	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	GAM-A-020	U-235	0.031814	0.11287	0.11289	0.189	0.0945	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-11	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	GAM-A-020	U-235	0.02712	0.08634	0.08636	0.145	0.0725	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-24	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	GAM-A-020	U-235	0.11028	0.092266	0.092569	0.153	0.0765	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-20	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	GAM-A-020	U-235	0.018721	0.085073	0.085096	0.145	0.0725	pCi	g	ARS1-B10-03806		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03806-26	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	GAM-A-020	U-235	0.051447	0.082686	0.082759	0.138	0.069	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-22	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	GAM-A-020	U-235	0.036961	0.091073	0.09113	0.153	0.0765	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-18	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	GAM-A-020	U-235	0.012569	0.11111	0.11111	0.188	0.094	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-23	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	GAM-A-020	U-235	0.03432	0.082656	0.08271	0.139	0.0695	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-25	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	GAM-A-020	U-235	0.049235	0.074214	0.074302	0.125	0.0625	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-19	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	GAM-A-020	U-235	0.078398	0.098247	0.098393	0.164	0.082	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-21	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	GAM-A-020	U-235	0.037887	0.10027	0.10035	0.135	0.0675	pCi	g	ARS1-B10-03806		1	U	U				
ARS1-B10-03806-16	TLS-SS-IA3-3(0.0-0.5)02121C	ARS1-10-00243-027	GAM-A-020	U-238	1.0673	0.35453	0.36308	0.645	0.3225	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-15	TLS-SB-IA3-8(7.0-8.0)02121C	ARS1-10-00243-024	GAM-A-020	U-238	0.68548	0.21532	0.22112	0.389	0.1945	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-14	TLS-SB-IA3-8(0.5-1.5)02121C	ARS1-10-00243-022	GAM-A-020	U-238	0.62521	0.27957	0.2835	0.417	0.2085	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-13	TLS-SB-IA3-6(5.0-6.0)02121C	ARS1-10-00243-018	GAM-A-020	U-238	0.83421	0.21322	0.22225	0.388	0.194	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-12	TLS-SB-IA3-6(3.1-4.1)02121C	ARS1-10-00243-017	GAM-A-020	U-238	0.76233	0.3624	0.3669	0.493	0.2465	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-05	TLS-SB-IA3-4(13.0-14.0)02111C	ARS1-10-00243-005	GAM-A-020	U-238	0.69926	0.23947	0.2449	0.433	0.2165	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-04	TLS-SB-IA3-4(12.0-13.0)02111C	ARS1-10-00243-004	GAM-A-020	U-238	0.53537	0.18856	0.19261	0.358	0.179	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-17	TLS-SB-IA3-3(4.4-5.4)02121C	ARS1-10-00243-030	GAM-A-020	U-238	1.0052	0.248	0.25927	0.471	0.2355	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-07	TLS-SB-IA3-2(16.0-17.0)02111C	ARS1-10-00243-009	GAM-A-020	U-238	1.1731	0.33256	0.34352	0.569	0.2845	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-06	TLS-SB-IA3-2(1.0-2.0)02111C	ARS1-10-00243-007	GAM-A-020	U-238	1.715	0.26505	0.29341	0.476	0.238	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-10	TLS-SB-IA3-10(6.5-7.5)02111C	ARS1-10-00243-014	GAM-A-020	U-238	0.6836	0.25898	0.26379	0.433	0.2165	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-09	TLS-SB-IA3-10(3.2-4.2)02111C	ARS1-10-00243-013	GAM-A-020	U-238	0.63178	0.24982	0.2543	0.342	0.171	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-08	TLS-SB-IA3-10(2.0-3.0)02111C	ARS1-10-00243-012	GAM-A-020	U-238	1.1115	0.36015	0.36972	0.485	0.2425	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-11	TLS-SB-IA3-10(14.0-15.0)02111C	ARS1-10-00243-015	GAM-A-020	U-238	0.93732	0.26048	0.26941	0.467	0.2335	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-24	TLS-SB-IA3-12(8.4-9.4)02161C	ARS1-10-00273-022	GAM-A-020	U-238	1.384	0.35594	0.37015	0.492	0.246	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-20	TLS-SB-IA3-5(4.0-5.0)02151C	ARS1-10-00273-009	GAM-A-020	U-238	0.86547	0.29209	0.29797	0.555	0.2775	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-26	TLS-SB-IA3-7(3.3-4.3)021510D	ARS1-10-00273-030	GAM-A-020	U-238	0.7391	0.26534	0.27109	0.365	0.1825	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-22	TLS-SB-IA3-9(8.7-9.7)02151C	ARS1-10-00273-018	GAM-A-020	U-238	0.90436	0.2524	0.26073	0.455	0.2275	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-18	TLS-SS-IA3-1(0.0-0.5)02151C	ARS1-10-00273-001	GAM-A-020	U-238	0.72301	0.22443	0.23061	0.481	0.2405	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-23	TLS-SS-IA3-12(0.0-0.5)02161C	ARS1-10-00273-020	GAM-A-020	U-238	0.81754	0.17245	0.18231	0.348	0.174	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-25	TLS-SS-IA3-13(0.0-0.5)02161C	ARS1-10-00273-025	GAM-A-020	U-238	0.55038	0.31252	0.31512	0.432	0.216	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-19	TLS-SS-IA3-5(0.0-.05)02151C	ARS1-10-00273-006	GAM-A-020	U-238	1.0173	0.42157	0.42834	0.553	0.2765	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03806-21	TLS-SS-IA3-7(0.0-0.5)02151C	ARS1-10-00273-011	GAM-A-020	U-238	0.88102	0.26895	0.27555	0.554	0.277	pCi	g	ARS1-B10-03806		1						
ARS1-B10-03828-09	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	GAM-A-020	AM-241	0.0177	0.035143	0.035156	0.0582	0.0291	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-10	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	GAM-A-020	AM-241	0.010983	0.02302	0.023027	0.0381	0.01905	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	GAM-A-020	AM-241	0.008839	0.02309	0.023094	0.0383	0.01915	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-06	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	GAM-A-020	AM-241	-0.00067	0.021636	0.021636	0.0362	0.0181	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-19	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	GAM-A-020	AM-241	-0.01732	0.035168	0.035178	0.0583	0.02915	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-20	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	GAM-A-020	AM-241	-0.01292	0.026914	0.026923	0.0446	0.0223	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-21	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	GAM-A-020	AM-241	0.000735	0.026919	0.026919	0.0451	0.02255	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-23	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	GAM-A-020	AM-241	-0.00188	0.031203	0.031203	0.0521	0.02605	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-07	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	GAM-A-020	AM-241	-0.00312	0.032976	0.032976	0.055	0.0275	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-12	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	GAM-A-020	AM-241	0.007495	0.031337	0.03134	0.0522	0.0261	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-13	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	GAM-A-020	AM-241	0.001823	0.019152	0.019152	0.0319	0.01595	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-14	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	GAM-A-020	AM-241	-0.00424	0.021692	0.021693	0.036	0.018	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-11	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	GAM-A-020	AM-241	0.009261	0.026612	0.026616	0.0442	0.0221	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-08	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	GAM-A-020	AM-241	0.054856	0.038254	0.038361	0.0622	0.0311	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-24	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	GAM-A-020	AM-241	-0.0065	0.14736	0.14736	0.061	0.0305	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-25	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	GAM-A-020	AM-241	-0.01589	0.031702	0.031713	0.0525	0.02625	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-26	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	GAM-A-020	AM-241	0.006948	0.030537	0.03054	0.0509	0.02545	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-16	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	GAM-A-020	AM-241	0.006991	0.030657	0.030659	0.051	0.0255	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-17	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	GAM-A-020	AM-241	-0.00392	0.35799	0.35799	0.0469	0.02345	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-18	TLS-SB-IA3-22(4.6-5.6)021710D	ARS1-10-00311-005	GAM-A-020	AM-241	0.028831	0.030653	0.030692	0.0504	0.0252	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-22	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	GAM-A-020	AM-241	0.03573	0.022294	0.022377	0.0362	0.0181	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-15	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	GAM-A-020	AM-241	0.001639	0.034506	0.034506	0.058	0.029	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-04	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	GAM-A-020	AM-241	-0.0004	0.038033	0.038033	0.0595	0.02975	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-09	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	GAM-A-020	RA-226	1.7331	0.62194	0.62768	0.714	0.357	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-10	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	GAM-A-020	RA-226	1.9119	0.35846	0.37102	0.428	0.214	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	GAM-A-020	RA-226	1.6474	0.34818	0.35736	0.426	0.213	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-06	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	GAM-A-020	RA-226	1.0642	0.28295	0.28769	0.469	0.2345	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-19	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	GAM-A-020	RA-226	1.2124	0.35418	0.37568	0.479	0.2395	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-20	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	GAM-A-020	RA-226	1.2495	0.41924	0.42389	0.567	0.2835	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-21	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	GAM-A-020	RA-226	1.06	0.37735	0.38107	0.481	0.2405	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-23	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	GAM-A-020	RA-226	1.5107	0.53403	0.53935	0.695	0.3475	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-07	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	GAM-A-020	RA-226	1.0848	0.34118	0.35912	0.462	0.231	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-12	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	GAM-A-020	RA-226	1.8761	0.45361	0.46327	0.54	0.27	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-13	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	GAM-A-020	RA-226	1.2368	0.29795	0.30754	0.379	0.1895	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-14	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	GAM-A-020	RA-226	1.6656	0.3753	0.38402	0.389	0.1945	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-11	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	GAM-A-020	RA-226	0.96652	0.30571	0.30934	0.513	0.2565	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-08	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	GAM-A-020	RA-226	2.5149	0.59054	0.60383	0.807	0.4035	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-24	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	GAM-A-020	RA-226	2.0038	0.58555	0.59411	0.687	0.3435	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-25	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	GAM-A-020	RA-226	1.7394	0.4209	0.42939	0.529	0.2645	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-26	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	GAM-A-020	RA-226	1.5934	0.496	0.5024	0.576	0.288	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-16	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	GAM-A-020	RA-226	1.3149	0.3476	0.35349	0.576	0.288	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-17	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	GAM-A-020	RA-226	1.1488	0.36787	0.37235	0.479	0.2395	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-18	TLS-SB-IA3-22(4.6-5.6)021710D	ARS1-10-00311-005	GAM-A-020	RA-226	1.7234	0.39116	0.40057	0.533	0.2665	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-22	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	GAM-A-020	RA-226	2.4601	0.47065	0.48573	0.583	0.2915	pCi	g	ARS1-B10-03828		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03828-15	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	GAM-A-020	RA-226	1.6918	0.49064	0.49754	0.698	0.349	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-04	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	GAM-A-020	RA-226	1.6187	0.543	0.54873	0.68	0.34	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-09	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	GAM-A-020	RA-228	0.90825	0.082898	0.09972	0.11	0.055	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-10	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	GAM-A-020	RA-228	0.84268	0.067106	0.084282	0.064	0.032	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	GAM-A-020	RA-228	0.85038	0.090807	0.10459	0.0809	0.04045	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-06	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	GAM-A-020	RA-228	0.62167	0.082276	0.090602	0.0682	0.0341	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-19	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	GAM-A-020	RA-228	0.98749	0.085597	0.11164	0.0962	0.0481	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-20	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	GAM-A-020	RA-228	0.69954	0.081431	0.091777	0.0916	0.0458	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-21	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	GAM-A-020	RA-228	0.69172	0.063538	0.076501	0.069	0.0345	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-23	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	GAM-A-020	RA-228	0.92935	0.12506	0.13713	0.102	0.051	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-07	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	GAM-A-020	RA-228	0.82835	0.069771	0.092103	0.0868	0.0434	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-12	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	GAM-A-020	RA-228	0.94687	0.10381	0.11907	0.0915	0.04575	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-13	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	GAM-A-020	RA-228	0.67926	0.071067	0.082664	0.0749	0.03745	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-14	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	GAM-A-020	RA-228	0.7901	0.059403	0.076508	0.0643	0.03215	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-11	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	GAM-A-020	RA-228	0.65138	0.070447	0.080888	0.0762	0.0381	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-08	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	GAM-A-020	RA-228	0.72043	0.11933	0.12732	0.15	0.075	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-24	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	GAM-A-020	RA-228	1.1823	0.12121	0.14141	0.1	0.05	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-25	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	GAM-A-020	RA-228	0.75681	0.066966	0.081347	0.0824	0.0412	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-26	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	GAM-A-020	RA-228	0.78947	0.079242	0.092973	0.096	0.048	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-16	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	GAM-A-020	RA-228	0.71988	0.067013	0.080129	0.106	0.053	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-17	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	GAM-A-020	RA-228	0.68953	0.063319	0.076244	0.0788	0.0394	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-18	TLS-SB-IA3-22(4.6-5.6)02171OD	ARS1-10-00311-005	GAM-A-020	RA-228	0.61136	0.0563	0.067367	0.0719	0.03595	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-22	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	GAM-A-020	RA-228	0.99197	0.10312	0.11957	0.127	0.0635	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-15	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	GAM-A-020	RA-228	0.46188	0.11689	0.12024	0.13	0.065	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-04	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	GAM-A-020	RA-228	0.82366	0.096526	0.10883	0.0903	0.04515	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-09	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	GAM-A-020	U-234	0.9542	0.39752	0.40394	0.531	0.2655	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-10	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	GAM-A-020	U-234	0.857	0.29102	0.29796	0.383	0.1915	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	GAM-A-020	U-234	0.78993	0.21772	0.22568	0.313	0.1565	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-19	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	GAM-A-020	U-234	0.81051	0.26475	0.27044	0.534	0.267	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-20	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	GAM-A-020	U-234	0.91371	0.26764	0.27618	0.494	0.247	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-21	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	GAM-A-020	U-234	0.69007	0.20058	0.20687	0.403	0.2015	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-06	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	GAM-A-020	U-234	0.58721	0.24673	0.25047	0.43	0.215	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-07	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	GAM-A-020	U-234	0.84654	0.18371	0.19253	0.492	0.246	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-12	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	GAM-A-020	U-234	0.78405	0.24245	0.24918	0.469	0.2345	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-13	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	GAM-A-020	U-234	0.5505	0.1516	0.15674	0.257	0.1285	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-14	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	GAM-A-020	U-234	0.56624	0.20444	0.20862	0.37	0.185	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-11	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	GAM-A-020	U-234	0.61828	0.24079	0.24503	0.454	0.227	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-08	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	GAM-A-020	U-234	1.3152	0.42261	0.43348	0.764	0.382	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-23	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	GAM-A-020	U-234	1.4565	0.31548	0.33367	0.607	0.3035	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-24	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	GAM-A-020	U-234	1.4221	0.31258	0.32954	0.558	0.279	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-25	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	GAM-A-020	U-234	0.94772	0.29467	0.30276	0.507	0.2535	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-26	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	GAM-A-020	U-234	0.87891	0.23467	0.24337	0.441	0.2205	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-16	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	GAM-A-020	U-234	0.86991	0.2951	0.30192	0.524	0.262	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-17	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	GAM-A-020	U-234	0.65073	0.21445	0.21971	0.433	0.2165	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-18	TLS-SB-IA3-22(4.6-5.6)02171OD	ARS1-10-00311-005	GAM-A-020	U-234	0.83221	0.26429	0.27149	0.482	0.241	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-22	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	GAM-A-020	U-234	1.1439	0.31541	0.32692	0.423	0.2115	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-15	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	GAM-A-020	U-234	1.023	0.25717	0.26843	0.555	0.2775	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-04	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	GAM-A-020	U-234	1.1048	0.27975	0.29182	0.514	0.257	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-09	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	GAM-A-020	U-235	0.086149	0.10996	0.11012	0.183	0.0915	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-10	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	GAM-A-020	U-235	0.039341	0.075124	0.075172	0.126	0.063	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	GAM-A-020	U-235	0.06119	0.077005	0.077117	0.128	0.064	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-19	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	GAM-A-020	U-235	-0.02349	0.16005	0.16007	0.152	0.076	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-20	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	GAM-A-020	U-235	0.004758	0.095538	0.095539	0.162	0.081	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-21	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	GAM-A-020	U-235	0.04759	0.089531	0.08959	0.149	0.0745	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-06	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	GAM-A-020	U-235	-0.00172	0.086925	0.086925	0.138	0.069	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-07	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	GAM-A-020	U-235	0.000753	0.082663	0.082663	0.141	0.0705	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-12	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	GAM-A-020	U-235	0.045388	0.098706	0.098755	0.165	0.0825	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-13	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	GAM-A-020	U-235	0.056139	0.061383	0.061577	0.102	0.051	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-14	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	GAM-A-020	U-235	0.075856	0.066699	0.066898	0.111	0.0555	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-11	TLS-SB-IA3-17 (9.0-10.0) 02171C	ARS1-10-00282-016	GAM-A-020	U-235	-0.00221	0.091219	0.091219	0.144	0.072	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-08	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	GAM-A-020	U-235	0.080351	0.1279	0.12802	0.217	0.1085	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-23	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	GAM-A-020	U-235	0.076194	0.11186	0.11198	0.187	0.0935	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-24	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	GAM-A-020	U-235	0.07932	0.11906	0.11919	0.198	0.099	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-25	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	GAM-A-020	U-235	-0.00285	0.10321	0.10321	0.16	0.08	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-26	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	GAM-A-020	U-235	0.033836	0.099493	0.09952	0.167	0.0835	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-16	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	GAM-A-020	U-235	0.089447	0.094676	0.094871	0.158	0.079	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-17	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	GAM-A-020	U-235	0.053545	0.092887	0.092959	0.155	0.0775	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-18	TLS-SB-IA3-22(4.6-5.6)02171OD	ARS1-10-00311-005	GAM-A-020	U-235	0.011464	0.095029	0.095032	0.161	0.0805	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-22	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	GAM-A-020	U-235	0.08305	0.092443	0.092615	0.154	0.077	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-15	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	GAM-A-020	U-235	0.005967	0.12069	0.1207	0.207	0.1035	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-04	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	GAM-A-020	U-235	0.071915	0.11582	0.11592	0.194	0.097	pCi	g	ARS1-B10-03828		1	U	U				
ARS1-B10-03828-09	TLS-SB-IA3-11 (4.0-5.0) 02161C	ARS1-10-00282-008	GAM-A-020	U-238	0.9542	0.39752	0.40394	0.531	0.2655	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-10	TLS-SB-IA3-11 (7.0-8.0) 02161C	ARS1-10-00282-010	GAM-A-020	U-238	0.857	0.29102	0.29796	0.383	0.1915	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-05	TLS-SB-IA3-14 (0.5-1.5) 02161C	ARS1-10-00282-002	GAM-A-020	U-238	0.78993	0.21772	0.22568	0.313	0.1565	pCi	g	ARS1-B10-03828		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03828-19	TLS-SB-IA3-18(2.3-3.3)02171C	ARS1-10-00311-009	GAM-A-020	U-238	0.81051	0.26475	0.27044	0.534	0.267	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-20	TLS-SB-IA3-18(6.0-7.0)02171C	ARS1-10-00311-010	GAM-A-020	U-238	0.91371	0.26764	0.27618	0.494	0.247	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-21	TLS-SB-IA3-18(8.0-9.0)02171C	ARS1-10-00311-011	GAM-A-020	U-238	0.69007	0.20058	0.20687	0.403	0.2015	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-06	TLS-SB-IA3-14 (7.5-8.5) 02161C	ARS1-10-00282-004	GAM-A-020	U-238	0.58721	0.24673	0.25047	0.43	0.215	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-07	TLS-SB-IA3-14 (8.5-9.5) 02161C	ARS1-10-00282-005	GAM-A-020	U-238	0.84654	0.18371	0.19253	0.492	0.246	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-12	TLS-SB-IA3-15 (2.0-3.0) 02171C	ARS1-10-00282-020	GAM-A-020	U-238	0.78405	0.24245	0.24918	0.469	0.2345	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-13	TLS-SB-IA3-15 (4.0-5.0) 02171C	ARS1-10-00282-021	GAM-A-020	U-238	0.5505	0.1516	0.15674	0.257	0.1285	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-14	TLS-SB-IA3-16 (2.7-3.7) 02171C	ARS1-10-00282-026	GAM-A-020	U-238	0.56624	0.20444	0.20862	0.37	0.185	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-11	TLS-SB-IA3-17 (9.0-10.0) 021710	ARS1-10-00282-016	GAM-A-020	U-238	0.61828	0.24079	0.24503	0.454	0.227	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-08	TLS-SS-IA3-11 (1.0-1.5) 02161C	ARS1-10-00282-006	GAM-A-020	U-238	1.3152	0.42261	0.43348	0.764	0.382	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-23	TLS-SB-IA3-20(0.5-1.5)02171C	ARS1-10-00311-013	GAM-A-020	U-238	1.4565	0.31548	0.33367	0.607	0.3035	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-24	TLS-SB-IA3-20(2.5-3.5)02171C	ARS1-10-00311-014	GAM-A-020	U-238	1.4221	0.31258	0.32954	0.558	0.279	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-25	TLS-SB-IA3-20(3.5-4.5)02171C	ARS1-10-00311-015	GAM-A-020	U-238	0.94772	0.29467	0.30276	0.507	0.2535	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-26	TLS-SB-IA3-20(6.2-7.2)02171C	ARS1-10-00311-016	GAM-A-020	U-238	0.87891	0.23467	0.24337	0.441	0.2205	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-16	TLS-SB-IA3-22(2.3-3.3)02171C	ARS1-10-00311-002	GAM-A-020	U-238	0.86991	0.2951	0.30192	0.524	0.262	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-17	TLS-SB-IA3-22(3.6-4.6)02171C	ARS1-10-00311-003	GAM-A-020	U-238	0.65073	0.21445	0.21971	0.433	0.2165	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-18	TLS-SB-IA3-22(4.6-5.6)021710D	ARS1-10-00311-005	GAM-A-020	U-238	0.83221	0.26429	0.27149	0.482	0.241	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-22	TLS-SS-IA3-20(0.0-0.5)02171C	ARS1-10-00311-012	GAM-A-020	U-238	1.1439	0.31541	0.32692	0.423	0.2115	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-15	TLS-SS-IA3-22(0.0-0.5)02171C	ARS1-10-00311-001	GAM-A-020	U-238	1.023	0.25717	0.26843	0.555	0.2775	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03828-04	TLS-SB-IA3-9(0.0-0.5)02151C	ARS1-10-00273-031	GAM-A-020	U-238	1.1048	0.27975	0.29182	0.514	0.257	pCi	g	ARS1-B10-03828		1						
ARS1-B10-03875-08	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	GAM-A-020	AM-241	-0.01359	0.069082	0.069085	0.0631	0.03155	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-09	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	GAM-A-020	AM-241	-0.00174	0.088766	0.088767	0.0498	0.0249	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-10	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	GAM-A-020	AM-241	-0.00875	0.032716	0.032719	0.0544	0.0272	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-11	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	GAM-A-020	AM-241	0	0.030628	0.030628	0.0512	0.0256	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-05	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	GAM-A-020	AM-241	0.005381	0.025374	0.025376	0.0423	0.02115	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-06	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	GAM-A-020	AM-241	-0.00433	0.021584	0.021585	0.0358	0.0179	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-14	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	GAM-A-020	AM-241	0.024365	0.024509	0.024542	0.0404	0.0202	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-16	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	GAM-A-020	AM-241	0.004509	0.029628	0.029629	0.0495	0.02475	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-15	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	GAM-A-020	AM-241	0.013328	0.041178	0.041183	0.0684	0.0342	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-12	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	GAM-A-020	AM-241	-0.00102	0.027477	0.027477	0.0459	0.02295	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-13	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	GAM-A-020	AM-241	0.007408	0.019942	0.019946	0.033	0.0165	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-07	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	GAM-A-020	AM-241	0.014011	0.036676	0.036684	0.0609	0.03045	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-04	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	GAM-A-020	AM-241	0.036396	0.027468	0.027531	0.0449	0.02245	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-22	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	GAM-A-020	AM-241	0.001879	0.03237	0.03237	0.0542	0.0271	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-25	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	GAM-A-020	AM-241	-8.9E-05	0.030663	0.030663	0.0514	0.0257	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-17	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	GAM-A-020	AM-241	-0.00826	0.032508	0.032511	0.0542	0.0271	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-18	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	GAM-A-020	AM-241	0.055344	0.030393	0.030536	0.0425	0.02125	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-20	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	GAM-A-020	AM-241	-0.00457	0.026781	0.026782	0.0447	0.02235	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-21	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	GAM-A-020	AM-241	0.00842	0.028963	0.028967	0.0481	0.02405	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-19	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	GAM-A-020	AM-241	-0.0117	0.08056	0.080562	0.064	0.032	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-23	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	GAM-A-020	AM-241	9.88E-05	0.020298	0.020298	0.0339	0.01695	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-24	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	GAM-A-020	AM-241	0.008132	0.031906	0.031909	0.0534	0.0267	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-26	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	GAM-A-020	AM-241	0.007279	0.025665	0.025667	0.0428	0.0214	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-08	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	GAM-A-020	RA-226	2.0839	0.61112	0.61999	0.703	0.3515	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-09	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	GAM-A-020	RA-226	2.0257	0.44003	0.4516	0.524	0.262	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-10	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	GAM-A-020	RA-226	1.474	0.43644	0.44264	0.623	0.3115	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-11	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	GAM-A-020	RA-226	1.5106	0.39845	0.40522	0.522	0.261	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-05	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	GAM-A-020	RA-226	1.6484	0.39502	0.40314	0.495	0.2475	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-06	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	GAM-A-020	RA-226	-0.81065	1.488	1.4885	0.445	0.2225	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-14	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	GAM-A-020	RA-226	0.92073	0.38941	0.39213	0.507	0.2535	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-16	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	GAM-A-020	RA-226	1.589	0.39771	0.40562	0.508	0.254	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-15	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	GAM-A-020	RA-226	2.0942	0.47394	0.52099	0.62	0.31	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-12	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	GAM-A-020	RA-226	1.6661	0.39031	0.39871	0.488	0.244	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-13	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	GAM-A-020	RA-226	0.92473	0.2254	0.22988	0.379	0.1895	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-07	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	GAM-A-020	RA-226	1.62	0.48812	0.49481	0.715	0.3575	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-04	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	GAM-A-020	RA-226	1.7833	0.46957	0.48225	0.651	0.3255	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-22	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	GAM-A-020	RA-226	1.4014	0.40663	0.41265	0.538	0.269	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-25	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	GAM-A-020	RA-226	1.5137	0.40226	0.409	0.535	0.2675	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-17	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	GAM-A-020	RA-226	1.8586	0.47306	0.4817	0.594	0.297	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-18	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	GAM-A-020	RA-226	1.3009	0.50459	0.50878	0.727	0.3635	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-20	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	GAM-A-020	RA-226	1.6523	0.4219	0.42956	0.51	0.255	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-21	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	GAM-A-020	RA-226	1.4709	0.39666	0.40344	0.551	0.2755	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-19	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	GAM-A-020	RA-226	2.613	0.60639	0.62038	0.704	0.352	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-23	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	GAM-A-020	RA-226	2.6814	0.41342	0.43368	0.507	0.2535	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-24	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	GAM-A-020	RA-226	1.4873	0.57751	0.58474	0.685	0.3425	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-26	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	GAM-A-020	RA-226	1.4465	0.39772	0.40395	0.662	0.331	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-08	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	GAM-A-020	RA-228	1.1885	0.1269	0.1465	0.115	0.0575	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-09	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	GAM-A-020	RA-228	0.80363	0.077638	0.092076	0.0832	0.0416	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-10	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	GAM-A-020	RA-228	0.80773	0.087096	0.099874	0.0978	0.0489	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-11	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	GAM-A-020	RA-228	0.89399	0.098349	0.11247	0.0839	0.04195	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-05	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	GAM-A-020	RA-228	0.79014	0.076482	0.090413	0.0966	0.0483	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-06	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	GAM-A-020	RA-228	0.74566	0.066046	0.080204	0.0629	0.03145	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-14	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	GAM-A-020	RA-228	0.45604	0.064181	0.070059	0.0722	0.0361	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-16	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	GAM-A-020	RA-228	0.82251	0.072455	0.088411	0.0836	0.0418	pCi	g	ARS1-B10-03875		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03875-15	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	GAM-A-020	RA-228	1.3459	0.13472	0.16641	0.12	0.06	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-12	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	GAM-A-020	RA-228	0.68853	0.073596	0.084746	0.0721	0.03605	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-13	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	GAM-A-020	RA-228	0.59916	0.05751	0.06815	0.063	0.0315	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-07	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	GAM-A-020	RA-228	0.75124	0.094051	0.10446	0.1	0.05	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-04	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	GAM-A-020	RA-228	0.93404	0.12305	0.13606	0.109	0.0545	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-22	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	GAM-A-020	RA-228	0.83983	0.087531	0.10167	0.0948	0.0474	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-25	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	GAM-A-020	RA-228	0.82714	0.11112	0.12205	0.094	0.047	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-17	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	GAM-A-020	RA-228	0.79129	0.12225	0.13144	0.107	0.0535	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-18	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	GAM-A-020	RA-228	0.67017	0.098118	0.10617	0.101	0.0505	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-20	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	GAM-A-020	RA-228	0.7711	0.099344	0.10993	0.0841	0.04205	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-21	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	GAM-A-020	RA-228	0.6967	0.086456	0.096188	0.0744	0.0372	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-19	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	GAM-A-020	RA-228	1.1886	0.091764	0.11739	0.109	0.0545	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-23	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	GAM-A-020	RA-228	1.1915	0.08026	0.1083	0.0907	0.04535	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-24	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	GAM-A-020	RA-228	0.56976	0.084891	0.091984	0.108	0.054	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-26	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	GAM-A-020	RA-228	0.79681	0.072592	0.087373	0.0911	0.04555	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-08	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	GAM-A-020	U-234	1.427	0.30615	0.32357	0.555	0.2775	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-09	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	GAM-A-020	U-234	1.2887	0.25488	0.27186	0.458	0.229	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-10	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	GAM-A-020	U-234	0.899	0.23356	0.243	0.528	0.264	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-11	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	GAM-A-020	U-234	0.86337	0.32658	0.33297	0.445	0.2225	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-05	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	GAM-A-020	U-234	0.93125	0.23879	0.24884	0.448	0.224	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-06	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	GAM-A-020	U-234	0.46671	0.23943	0.24186	0.35	0.175	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-14	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	GAM-A-020	U-234	0.53785	0.18888	0.19296	0.403	0.2015	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-16	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	GAM-A-020	U-234	1.0753	0.25627	0.26814	0.475	0.2375	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-15	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	GAM-A-020	U-234	1.5791	0.34555	0.36189	0.65	0.325	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-12	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	GAM-A-020	U-234	0.80424	0.27296	0.27927	0.484	0.242	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-13	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	GAM-A-020	U-234	0.60749	0.21991	0.22438	0.322	0.161	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-07	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	GAM-A-020	U-234	1.1205	0.31624	0.3271	0.615	0.3075	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-04	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	GAM-A-020	U-234	1.1528	0.28324	0.29526	0.517	0.2585	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-22	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	GAM-A-020	U-234	0.95756	0.25464	0.26415	0.479	0.2395	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-25	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	GAM-A-020	U-234	0.87182	0.2331	0.24214	0.446	0.223	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-17	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	GAM-A-020	U-234	0.72681	0.32903	0.33354	0.469	0.2345	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-18	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	GAM-A-020	U-234	1.0215	0.28158	0.29171	0.586	0.293	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-20	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	GAM-A-020	U-234	0.67555	0.30292	0.30715	0.418	0.209	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-21	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	GAM-A-020	U-234	0.80736	0.25585	0.26284	0.46	0.23	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-19	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	GAM-A-020	U-234	1.3556	0.27988	0.29704	0.566	0.283	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-23	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	GAM-A-020	U-234	1.0758	0.32302	0.33253	0.455	0.2275	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-24	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	GAM-A-020	U-234	0.7654	0.23248	0.23898	0.428	0.214	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-26	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	GAM-A-020	U-234	1.087	0.33853	0.3478	0.616	0.308	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-08	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	GAM-A-020	U-235	0.053602	0.1206	0.12065	0.201	0.1005	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-09	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	GAM-A-020	U-235	0.012704	0.1013	0.10131	0.17	0.085	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-10	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	GAM-A-020	U-235	0.053121	0.10573	0.10579	0.178	0.089	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-11	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	GAM-A-020	U-235	0.054826	0.10072	0.10079	0.168	0.084	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-05	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	GAM-A-020	U-235	0.025383	0.098383	0.098398	0.165	0.0825	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-06	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	GAM-A-020	U-235	0.060362	0.065573	0.065701	0.109	0.0545	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-14	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	GAM-A-020	U-235	0.059359	0.088014	0.088108	0.147	0.0735	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-16	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	GAM-A-020	U-235	0.067134	0.097876	0.097984	0.163	0.0815	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-15	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	GAM-A-020	U-235	0.090331	0.11261	0.11301	0.154	0.077	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-12	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	GAM-A-020	U-235	0.043659	0.086365	0.086416	0.145	0.0725	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-13	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	GAM-A-020	U-235	0.045857	0.06184	0.061919	0.103	0.0515	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-07	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	GAM-A-020	U-235	0.047632	0.11882	0.11887	0.201	0.1005	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-04	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	GAM-A-020	U-235	0.036546	0.11551	0.11556	0.194	0.097	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-22	TLS-SB-IA5-15 (2.0-3.0) 02221C	ARS1-10-00429-012	GAM-A-020	U-235	0.046618	0.10445	0.1045	0.175	0.0875	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-25	TLS-SB-IA5-17 (3.3-4.3) 02221C	ARS1-10-00429-027	GAM-A-020	U-235	0.064381	0.10001	0.10011	0.167	0.0835	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-17	TLS-SB-IA5-18 (1.3-2.3) 02191C	ARS1-10-00429-002	GAM-A-020	U-235	0.019273	0.1098	0.1098	0.185	0.0925	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-18	TLS-SB-IA5-18 (4.0-5.0) 02191C	ARS1-10-00429-003	GAM-A-020	U-235	0.11112	0.11225	0.1125	0.188	0.094	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-20	TLS-SB-IA5-20 (27.2-28.2) 02191C	ARS1-10-00429-008	GAM-A-020	U-235	0.066811	0.094921	0.095029	0.158	0.079	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-21	TLS-SB-IA5-20 (32.0-33.0) 02191C	ARS1-10-00429-010	GAM-A-020	U-235	0.070694	0.095059	0.095182	0.159	0.0795	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-19	TLS-SB-IA5-20 (9.0-10.0) 02191C	ARS1-10-00429-007	GAM-A-020	U-235	0.076797	0.12436	0.12447	0.207	0.1035	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-23	TLS-SB-IA5-22 (7.5-8.5) 02221C	ARS1-10-00429-019	GAM-A-020	U-235	0.10244	0.086294	0.086574	0.143	0.0715	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-24	TLS-SS-IA5-17 (1.8-2.3) 02221C	ARS1-10-00429-026	GAM-A-020	U-235	-0.00487	0.12937	0.12937	0.179	0.0895	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-26	TLS-SB-IA5-5 (3.0-4.0) 02231C	ARS1-10-00443-002	GAM-A-020	U-235	0.053267	0.10481	0.10487	0.177	0.0885	pCi	g	ARS1-B10-03875		1	U	U				
ARS1-B10-03875-08	TLS-SB-IA3-19(5.0-6.0)02181C	ARS1-10-00311-024	GAM-A-020	U-238	1.427	0.30615	0.32357	0.555	0.2775	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-09	TLS-SB-IA3-19(6.0-7.0)02181C	ARS1-10-00311-025	GAM-A-020	U-238	1.2887	0.25488	0.27186	0.458	0.229	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-10	TLS-SB-IA3-19(8.0-9.0)02181C	ARS1-10-00311-026	GAM-A-020	U-238	0.899	0.23356	0.243	0.528	0.264	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-11	TLS-SB-IA3-19(8.0-9.0)021810D	ARS1-10-00311-027	GAM-A-020	U-238	0.86337	0.32658	0.33297	0.445	0.2225	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-05	TLS-SB-IA3-21(5.0-6.0)02171C	ARS1-10-00311-020	GAM-A-020	U-238	0.93125	0.23879	0.24884	0.448	0.224	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-06	TLS-SB-IA3-21(6.0-7.0)02171C	ARS1-10-00311-021	GAM-A-020	U-238	0.46671	0.23943	0.24186	0.35	0.175	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-14	TLS-SB-IA5-19(1.0-2.0)02181C	ARS1-10-00311-040	GAM-A-020	U-238	0.53785	0.18888	0.19296	0.403	0.2015	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-16	TLS-SB-IA5-19(10.5-11.5)02181C	ARS1-10-00311-043	GAM-A-020	U-238	1.0753	0.25627	0.26814	0.475	0.2375	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-15	TLS-SB-IA5-19(5.5-6.5)02181C	ARS1-10-00311-042	GAM-A-020	U-238	1.5791	0.34555	0.36189	0.65	0.325	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-12	TLS-SB-IA5-21(18.2-19.2)02181C	ARS1-10-00311-031	GAM-A-020	U-238	0.80424	0.27296	0.27927	0.484	0.242	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-13	TLS-SB-IA5-21(22.7-23.7)02181C	ARS1-10-00311-032	GAM-A-020	U-238	0.60749	0.21991	0.22438	0.322	0.161	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-07	TLS-SS-IA3-19(0.0-0.5)02181C	ARS1-10-00311-022	GAM-A-020	U-238	1.1205	0.31624	0.3271	0.615	0.3075	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-04	TLS-SS-IA3-21(0.0-0.5)02171C	ARS1-10-00311-017	GAM-A-020	U-238	1.1528	0.28324	0.29526	0.517	0.2585	pCi	g	ARS1-B10-03875		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03875-22	TLS-SB-IA5-15 (2.0-3.0) 022210	ARS1-10-00429-012	GAM-A-020	U-238	0.95756	0.25464	0.26415	0.479	0.2395	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-25	TLS-SB-IA5-17 (3.3-4.3) 022210	ARS1-10-00429-027	GAM-A-020	U-238	0.87182	0.2331	0.24214	0.446	0.223	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-17	TLS-SB-IA5-18 (1.3-2.3) 021910	ARS1-10-00429-002	GAM-A-020	U-238	0.72681	0.32903	0.33354	0.469	0.2345	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-18	TLS-SB-IA5-18 (4.0-5.0) 021910	ARS1-10-00429-003	GAM-A-020	U-238	1.0215	0.28158	0.29171	0.586	0.293	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-20	TLS-SB-IA5-20 (27.2-28.2) 021910	ARS1-10-00429-008	GAM-A-020	U-238	0.67555	0.30292	0.30715	0.418	0.209	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-21	TLS-SB-IA5-20 (32.0-33.0) 021910	ARS1-10-00429-010	GAM-A-020	U-238	0.80736	0.25585	0.26284	0.46	0.23	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-19	TLS-SB-IA5-20 (9.0-10.0) 021910	ARS1-10-00429-007	GAM-A-020	U-238	1.3556	0.27988	0.29704	0.566	0.283	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-23	TLS-SB-IA5-22 (7.5-8.5) 022210	ARS1-10-00429-019	GAM-A-020	U-238	1.0758	0.32302	0.33253	0.455	0.2275	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-24	TLS-SS-IA5-17 (1.8-2.3) 022210	ARS1-10-00429-026	GAM-A-020	U-238	0.7654	0.23248	0.23898	0.428	0.214	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03875-26	TLS-SB-IA5-5 (3.0-4.0) 022310	ARS1-10-00443-002	GAM-A-020	U-238	1.087	0.33853	0.3478	0.616	0.308	pCi	g	ARS1-B10-03875		1						
ARS1-B10-03884-04	TLS-SB-IA4-11 (29.0-30.0) 022610	ARS1-10-00467-017	GAM-A-020	AM-241	0.002493	0.020355	0.020355	0.0338	0.0169	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-05	TLS-SB-IA4-3 (10.0-11.0) 030310	ARS1-10-00473-010	GAM-A-020	AM-241	-2.8E-05	0.021336	0.021336	0.0355	0.01775	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-08	TLS-SB-IA6-15 (6.0-7.0) 030810	ARS1-10-00511-017	GAM-A-020	AM-241	0.03355	0.026102	0.02616	0.0324	0.0162	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-07	TLS-SB-IA6-16 (14.0-15.0) 030810	ARS1-10-00511-005	GAM-A-020	AM-241	-0.00346	0.26311	0.26311	0.0592	0.0296	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-10	TLS-SB-IA5-B01 (4.0-5.0)031010	ARS1-10-00560-033	GAM-A-020	AM-241	-0.01784	0.024664	0.024683	0.0407	0.02035	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-09	TLS-SB-IA6-B01 (13.3-14.0)031010	ARS1-10-00560-023	GAM-A-020	AM-241	0.006691	0.016702	0.016706	0.0277	0.01385	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-19	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	GAM-A-020	AM-241	0.005832	0.029019	0.029021	0.0481	0.02405	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-20	TLS-SB-IA6-11 (14.0-15.0)031610	ARS1-10-00591-035	GAM-A-020	AM-241	-0.00224	0.02597	0.02597	0.0432	0.0216	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-21	TLS-SB-IA6-11 (16.0-17.0)031610	ARS1-10-00591-036	GAM-A-020	AM-241	0.018124	0.024389	0.024404	0.0402	0.0201	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-13	TLS-SB-IA6-12 (16.0-17.0)031610	ARS1-10-00591-004	GAM-A-020	AM-241	-0.00239	0.025436	0.025437	0.0424	0.0212	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-14	TLS-SB-IA6-12 (17.0-18.0)031610D	ARS1-10-00591-006	GAM-A-020	AM-241	-0.00763	0.028687	0.02869	0.0476	0.0238	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-12	TLS-SB-IA6-12 (6.0-7.0)031610	ARS1-10-00591-002	GAM-A-020	AM-241	-0.00401	0.030689	0.03069	0.051	0.0255	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-16	TLS-SB-IA6-13 (23.0-24.0)031610	ARS1-10-00591-030	GAM-A-020	AM-241	0.034767	0.033619	0.03367	0.0552	0.0276	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-17	TLS-SB-IA6-13 (25.0-26.0)031610	ARS1-10-00591-032	GAM-A-020	AM-241	0.002351	0.026628	0.026629	0.0445	0.02225	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-18	TLS-SS-IA6-11 (12.0-12.5)031610	ARS1-10-00591-033	GAM-A-020	AM-241	0.01003	0.030487	0.030492	0.0507	0.02535	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-11	TLS-SS-IA6-12 (1.0-1.5)031610	ARS1-10-00591-001	GAM-A-020	AM-241	0.00265	0.030511	0.030511	0.0509	0.02545	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-15	TLS-SS-IA6-13 (12.0-12.5)031610	ARS1-10-00591-028	GAM-A-020	AM-241	0.020578	0.029865	0.029885	0.0493	0.02465	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-22	TLS-SB-IA6-10 (15.6-16.6)031710	ARS1-10-00600-008	GAM-A-020	AM-241	0.01332	0.0261	0.026109	0.0432	0.0216	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-24	TLS-SB-IA6-14 (17.4-18.4)031710	ARS1-10-00600-013	GAM-A-020	AM-241	0.029035	0.026265	0.02631	0.0431	0.02155	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-25	TLS-SB-IA6-18 (8.9-9.9)031710	ARS1-10-00600-021	GAM-A-020	AM-241	0.009195	0.019467	0.019473	0.0323	0.01615	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-23	TLS-SS-IA6-14 (12.0-12.5)031710	ARS1-10-00600-010	GAM-A-020	AM-241	0.071545	0.028396	0.02864	0.0376	0.0188	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-27	TLS-SB-IA6-19 (4.0-5.0)031810	ARS1-10-00609-002	GAM-A-020	AM-241	0.020632	0.024819	0.024844	0.0409	0.02045	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-04	TLS-SB-IA4-11 (29.0-30.0) 022610	ARS1-10-00467-017	GAM-A-020	RA-226	1.3082	0.31599	0.32238	0.383	0.1915	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-05	TLS-SB-IA4-3 (10.0-11.0) 030310D	ARS1-10-00473-010	GAM-A-020	RA-226	1.4611	0.39776	0.40443	0.43	0.215	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-08	TLS-SB-IA6-15 (6.0-7.0) 030810	ARS1-10-00511-017	GAM-A-020	RA-226	-2.1415	0.63571	0.64426	0.364	0.182	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-07	TLS-SB-IA6-16 (14.0-15.0) 030810	ARS1-10-00511-005	GAM-A-020	RA-226	2.3333	0.62376	0.63464	0.711	0.3555	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-10	TLS-SB-IA5-B01 (4.0-5.0)031010	ARS1-10-00560-033	GAM-A-020	RA-226	1.7119	0.32611	0.33718	0.458	0.229	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-09	TLS-SB-IA6-B01 (13.3-14.0)031010	ARS1-10-00560-023	GAM-A-020	RA-226	0.86657	0.32535	0.32809	0.395	0.1975	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-19	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	GAM-A-020	RA-226	1.9298	0.52797	0.53674	0.553	0.2765	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-20	TLS-SB-IA6-11 (14.0-15.0)031610	ARS1-10-00591-035	GAM-A-020	RA-226	1.2481	0.29435	0.3006	0.495	0.2475	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-21	TLS-SB-IA6-11 (16.0-17.0)031610	ARS1-10-00591-036	GAM-A-020	RA-226	1.2601	0.35307	0.37631	0.419	0.2095	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-13	TLS-SB-IA6-12 (16.0-17.0)031610	ARS1-10-00591-004	GAM-A-020	RA-226	1.8011	0.39294	0.40267	0.489	0.2445	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-14	TLS-SB-IA6-12 (17.0-18.0)031610D	ARS1-10-00591-006	GAM-A-020	RA-226	1.6406	0.3747	0.3836	0.522	0.261	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-12	TLS-SB-IA6-12 (6.0-7.0)031610	ARS1-10-00591-002	GAM-A-020	RA-226	1.8761	0.53314	0.54135	0.642	0.321	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-16	TLS-SB-IA6-13 (23.0-24.0)031610	ARS1-10-00591-030	GAM-A-020	RA-226	1.9257	0.47627	0.48594	0.655	0.3275	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-17	TLS-SB-IA6-13 (25.0-26.0)031610	ARS1-10-00591-032	GAM-A-020	RA-226	1.7009	0.43698	0.44523	0.523	0.2615	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-18	TLS-SS-IA6-11 (12.0-12.5)031610	ARS1-10-00591-033	GAM-A-020	RA-226	1.936	0.46088	0.471	0.564	0.282	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-11	TLS-SS-IA6-12 (1.0-1.5)031610	ARS1-10-00591-001	GAM-A-020	RA-226	2.0252	0.491	0.50139	0.575	0.2875	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-15	TLS-SS-IA6-13 (12.0-12.5)031610	ARS1-10-00591-028	GAM-A-020	RA-226	2.2867	0.41276	0.42762	0.527	0.2635	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-22	TLS-SB-IA6-10 (15.6-16.6)031710	ARS1-10-00600-008	GAM-A-020	RA-226	1.9055	0.41595	0.42624	0.494	0.247	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-24	TLS-SB-IA6-14 (17.4-18.4)031710	ARS1-10-00600-013	GAM-A-020	RA-226	1.4961	0.46335	0.46937	0.56	0.28	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-25	TLS-SB-IA6-18 (8.9-9.9)031710	ARS1-10-00600-021	GAM-A-020	RA-226	0.89024	0.29307	0.29645	0.381	0.1905	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-23	TLS-SS-IA6-14 (12.0-12.5)031710	ARS1-10-00600-010	GAM-A-020	RA-226	1.5249	0.4127	0.41973	0.505	0.2525	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-27	TLS-SB-IA6-19 (4.0-5.0)031810	ARS1-10-00609-002	GAM-A-020	RA-226	1.618	0.34025	0.34931	0.476	0.238	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-04	TLS-SB-IA4-11 (29.0-30.0) 022610	ARS1-10-00467-017	GAM-A-020	RA-228	0.73159	0.060926	0.075532	0.0603	0.03015	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-05	TLS-SB-IA4-3 (10.0-11.0) 030310D	ARS1-10-00473-010	GAM-A-020	RA-228	0.61353	0.053111	0.064801	0.0698	0.0349	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-08	TLS-SB-IA6-15 (6.0-7.0) 030810	ARS1-10-00511-017	GAM-A-020	RA-228	0.63637	0.053344	0.065983	0.0673	0.03365	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-07	TLS-SB-IA6-16 (14.0-15.0) 030810	ARS1-10-00511-005	GAM-A-020	RA-228	0.91732	0.08419	0.10139	0.0997	0.04985	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-10	TLS-SB-IA5-B01 (4.0-5.0)031010	ARS1-10-00560-033	GAM-A-020	RA-228	0.7255	0.054026	0.069615	0.058	0.029	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-09	TLS-SB-IA6-B01 (13.3-14.0)031010	ARS1-10-00560-023	GAM-A-020	RA-228	0.34881	0.047614	0.052156	0.0591	0.02955	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-19	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	GAM-A-020	RA-228	0.99436	0.086137	0.10507	0.075	0.0375	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-20	TLS-SB-IA6-11 (14.0-15.0)031610	ARS1-10-00591-035	GAM-A-020	RA-228	0.81791	0.082523	0.096444	0.0923	0.04615	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-21	TLS-SB-IA6-11 (16.0-17.0)031610	ARS1-10-00591-036	GAM-A-020	RA-228	0.8219	0.102	0.11817	0.0966	0.0483	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-13	TLS-SB-IA6-12 (16.0-17.0)031610	ARS1-10-00591-004	GAM-A-020	RA-228	0.80475	0.062886	0.07979	0.0884	0.0442	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-14	TLS-SB-IA6-12 (17.0-18.0)031610D	ARS1-10-00591-006	GAM-A-020	RA-228	0.89842	0.076355	0.093732	0.0801	0.04005	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-12	TLS-SB-IA6-12 (6.0-7.0)031610	ARS1-10-00591-002	GAM-A-020	RA-228	0.90761	0.072683	0.0911	0.0794	0.0397	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-16	TLS-SB-IA6-13 (23.0-24.0)031610	ARS1-10-00591-030	GAM-A-020	RA-228	0.68185	0.069989	0.081246	0.0933	0.04665	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-17	TLS-SB-IA6-13 (25.0-26.0)031610	ARS1-10-00591-032	GAM-A-020	RA-228	0.80556	0.087032	0.10018	0.0837	0.04185	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-18	TLS-SS-IA6-11 (12.0-12.5)031610	ARS1-10-00591-033	GAM-A-020	RA-228	0.8538	0.081611	0.097088	0.0805	0.04025	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-11	TLS-SS-IA6-12 (1.0-1.5)031610	ARS1-10-00591-001	GAM-A-020	RA-228	1.0359	0.076413	0.09955	0.0897	0.04485	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-15	TLS-SS-IA6-13 (12.0-12.5)031610	ARS1-10-00591-028	GAM-A-020	RA-228	0.82233	0.10066	0.11248	0.115	0.0575	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-22	TLS-SB-IA6-10 (15.6-16.6)031710	ARS1-10-00600-008	GAM-A-020	RA-228	0.88843	0.066879	0.086094	0.0897	0.04485	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-24	TLS-SB-IA6-14 (17.4-18.4)031710	ARS1-10-00600-013	GAM-A-020	RA-228	0.62154	0.082976	0.091102	0.0835	0.04175	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-25	TLS-SB-IA6-18 (8.9-9.9)031710	ARS1-10-00600-021	GAM-A-020	RA-228	0.48454	0.05235	0.06026	0.0563	0.02815	pCi	g	ARS1-B10-03884		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-03884-23	TLS-SS-IA6-14 (12.0-12.5)03171C	ARS1-10-00600-010	GAM-A-020	RA-228	0.78878	0.082761	0.095968	0.0782	0.0391	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-27	TLS-SB-IA6-19 (4.0-5.0)031810	ARS1-10-00609-002	GAM-A-020	RA-228	0.70852	0.056667	0.071278	0.0864	0.0432	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-04	TLS-SB-IA4-11 (29.0-30.0) 02261C	ARS1-10-00467-017	GAM-A-020	U-234	0.44262	0.19409	0.19693	0.312	0.156	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03586-19	TLS-SB-IA4-3 (10.0-11.0) 030310C	ARS1-10-00473-010	GAM-A-020	U-234	0.79553	0.24531	0.25239	0.36	0.18	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-08	TLS-SB-IA6-15 (6.0-7.0) 03081C	ARS1-10-00511-017	GAM-A-020	U-234	0.67619	0.2523	0.25713	0.35	0.175	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-07	TLS-SB-IA6-16 (14.0-15.0) 03081C	ARS1-10-00511-005	GAM-A-020	U-234	0.94759	0.25329	0.26266	0.526	0.263	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-10	TLS-SB-IA5-B01 (4.0-5.0)03101C	ARS1-10-00560-033	GAM-A-020	U-234	0.51192	0.27602	0.27865	0.388	0.194	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-09	TLS-SB-IA6-B01 (13.3-14.0)03101C	ARS1-10-00560-023	GAM-A-020	U-234	0.33752	0.19204	0.19371	0.274	0.137	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-19	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	GAM-A-020	U-234	0.89737	0.35284	0.35914	0.479	0.2395	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-20	TLS-SB-IA6-11 (14.0-15.0)03161C	ARS1-10-00591-035	GAM-A-020	U-234	0.62895	0.33884	0.34197	0.462	0.231	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-21	TLS-SB-IA6-11 (16.0-17.0)03161C	ARS1-10-00591-036	GAM-A-020	U-234	0.79256	0.20987	0.21669	0.409	0.2045	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-13	TLS-SB-IA6-12 (16.0-17.0)03161C	ARS1-10-00591-004	GAM-A-020	U-234	0.68464	0.26804	0.27294	0.384	0.192	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-14	TLS-SB-IA6-12 (17.0-18.0)031610C	ARS1-10-00591-006	GAM-A-020	U-234	1.2919	0.25883	0.27619	0.477	0.2385	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-12	TLS-SB-IA6-12 (6.0-7.0)03161C	ARS1-10-00591-002	GAM-A-020	U-234	1.309	0.29917	0.3147	0.57	0.285	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-16	TLS-SB-IA6-13 (23.0-24.0)03161C	ARS1-10-00591-030	GAM-A-020	U-234	1.0334	0.30063	0.31035	0.561	0.2805	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-17	TLS-SB-IA6-13 (25.0-26.0)03161C	ARS1-10-00591-032	GAM-A-020	U-234	0.66824	0.30037	0.30434	0.414	0.207	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-18	TLS-SS-IA6-11 (12.0-12.5)03161C	ARS1-10-00591-033	GAM-A-020	U-234	1.0513	0.23177	0.24427	0.482	0.241	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-11	TLS-SS-IA6-12 (1.0-1.5)03161C	ARS1-10-00591-001	GAM-A-020	U-234	0.91739	0.2568	0.26548	0.46	0.23	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-15	TLS-SS-IA6-13 (12.0-12.5)03161C	ARS1-10-00591-028	GAM-A-020	U-234	0.48444	0.31001	0.31214	0.453	0.2265	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-22	TLS-SB-IA6-10 (15.6-16.6)03171C	ARS1-10-00600-008	GAM-A-020	U-234	0.66646	0.31292	0.31691	0.412	0.206	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-24	TLS-SB-IA6-14 (17.4-18.4)03171C	ARS1-10-00600-013	GAM-A-020	U-234	0.84526	0.36011	0.36559	0.478	0.239	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-25	TLS-SB-IA6-18 (8.9-9.9)03171C	ARS1-10-00600-021	GAM-A-020	U-234	0.49308	0.14053	0.14511	0.297	0.1485	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-23	TLS-SS-IA6-14 (12.0-12.5)03171C	ARS1-10-00600-010	GAM-A-020	U-234	0.96885	0.22736	0.23822	0.424	0.212	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-27	TLS-SB-IA6-19 (4.0-5.0)031810	ARS1-10-00609-002	GAM-A-020	U-234	0.7311	0.2704	0.27593	0.394	0.197	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-04	TLS-SB-IA4-11 (29.0-30.0) 02261C	ARS1-10-00467-017	GAM-A-020	U-235	0.052187	0.067777	0.067869	0.113	0.0565	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-05	TLS-SB-IA4-3 (10.0-11.0) 030310C	ARS1-10-00473-010	GAM-A-020	U-235	0.048994	0.0702	0.070279	0.118	0.059	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-08	TLS-SB-IA6-15 (6.0-7.0) 03081C	ARS1-10-00511-017	GAM-A-020	U-235	0.037444	0.064665	0.064715	0.108	0.054	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-07	TLS-SB-IA6-16 (14.0-15.0) 03081C	ARS1-10-00511-005	GAM-A-020	U-235	0.046492	0.12208	0.12212	0.205	0.1025	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-10	TLS-SB-IA5-B01 (4.0-5.0)03101C	ARS1-10-00560-033	GAM-A-020	U-235	0.048073	0.075215	0.075286	0.126	0.063	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-09	TLS-SB-IA6-B01 (13.3-14.0)03101C	ARS1-10-00560-023	GAM-A-020	U-235	0.051697	0.05981	0.059913	0.1	0.05	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-19	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	GAM-A-020	U-235	0.14454	0.092393	0.092919	0.121	0.0605	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-20	TLS-SB-IA6-11 (14.0-15.0)03161C	ARS1-10-00591-035	GAM-A-020	U-235	0.04414	0.080977	0.081032	0.136	0.068	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-21	TLS-SB-IA6-11 (16.0-17.0)03161C	ARS1-10-00591-036	GAM-A-020	U-235	0.036773	0.07481	0.074909	0.101	0.0505	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-13	TLS-SB-IA6-12 (16.0-17.0)03161C	ARS1-10-00591-004	GAM-A-020	U-235	0.052325	0.085901	0.085975	0.144	0.072	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-14	TLS-SB-IA6-12 (17.0-18.0)031610C	ARS1-10-00591-006	GAM-A-020	U-235	0.037798	0.087883	0.087921	0.148	0.074	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-12	TLS-SB-IA6-12 (6.0-7.0)03161C	ARS1-10-00591-002	GAM-A-020	U-235	0.070729	0.09761	0.097729	0.164	0.082	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-16	TLS-SB-IA6-13 (23.0-24.0)03161C	ARS1-10-00591-030	GAM-A-020	U-235	0.065805	0.10095	0.10105	0.171	0.0855	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-17	TLS-SB-IA6-13 (25.0-26.0)03161C	ARS1-10-00591-032	GAM-A-020	U-235	0.041762	0.091169	0.091214	0.152	0.076	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-18	TLS-SS-IA6-11 (12.0-12.5)03161C	ARS1-10-00591-033	GAM-A-020	U-235	0.041708	0.098122	0.098163	0.164	0.082	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-11	TLS-SS-IA6-12 (1.0-1.5)03161C	ARS1-10-00591-001	GAM-A-020	U-235	0.024001	0.097571	0.097585	0.163	0.0815	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-15	TLS-SS-IA6-13 (12.0-12.5)03161C	ARS1-10-00591-028	GAM-A-020	U-235	0.057271	0.097534	0.097612	0.164	0.082	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-22	TLS-SB-IA6-10 (15.6-16.6)03171C	ARS1-10-00600-008	GAM-A-020	U-235	0.046078	0.085803	0.085861	0.143	0.0715	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-24	TLS-SB-IA6-14 (17.4-18.4)03171C	ARS1-10-00600-013	GAM-A-020	U-235	0.030996	0.0859	0.085926	0.145	0.0725	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-25	TLS-SB-IA6-18 (8.9-9.9)03171C	ARS1-10-00600-021	GAM-A-020	U-235	0.040385	0.066228	0.066285	0.111	0.0555	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-23	TLS-SS-IA6-14 (12.0-12.5)03171C	ARS1-10-00600-010	GAM-A-020	U-235	0.073991	0.087338	0.087484	0.145	0.0725	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-27	TLS-SB-IA6-19 (4.0-5.0)031810	ARS1-10-00609-002	GAM-A-020	U-235	0.063351	0.085641	0.085749	0.144	0.072	pCi	g	ARS1-B10-03884		1	U	U				
ARS1-B10-03884-04	TLS-SB-IA4-11 (29.0-30.0) 02261C	ARS1-10-00467-017	GAM-A-020	U-238	0.44262	0.19409	0.19693	0.312	0.156	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-05	TLS-SB-IA4-3 (10.0-11.0) 030310C	ARS1-10-00473-010	GAM-A-020	U-238	0.79553	0.24531	0.25239	0.36	0.18	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-08	TLS-SB-IA6-15 (6.0-7.0) 03081C	ARS1-10-00511-017	GAM-A-020	U-238	0.67619	0.2523	0.25713	0.35	0.175	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-07	TLS-SB-IA6-16 (14.0-15.0) 03081C	ARS1-10-00511-005	GAM-A-020	U-238	0.94759	0.25329	0.26266	0.526	0.263	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-10	TLS-SB-IA5-B01 (4.0-5.0)03101C	ARS1-10-00560-033	GAM-A-020	U-238	0.51192	0.27602	0.27865	0.388	0.194	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-09	TLS-SB-IA6-B01 (13.3-14.0)03101C	ARS1-10-00560-023	GAM-A-020	U-238	0.33752	0.19204	0.19371	0.274	0.137	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-19	TLS-SB-IA6-11 (12.5-13.0/13.5-14.0)0316	ARS1-10-00591-034	GAM-A-020	U-238	0.89737	0.35284	0.35914	0.479	0.2395	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-20	TLS-SB-IA6-11 (14.0-15.0)03161C	ARS1-10-00591-035	GAM-A-020	U-238	0.62895	0.33884	0.34197	0.462	0.231	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-21	TLS-SB-IA6-11 (16.0-17.0)03161C	ARS1-10-00591-036	GAM-A-020	U-238	0.79256	0.20987	0.21669	0.409	0.2045	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-13	TLS-SB-IA6-12 (16.0-17.0)03161C	ARS1-10-00591-004	GAM-A-020	U-238	0.68464	0.26804	0.27294	0.384	0.192	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-14	TLS-SB-IA6-12 (17.0-18.0)031610C	ARS1-10-00591-006	GAM-A-020	U-238	1.2919	0.25883	0.27619	0.477	0.2385	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-12	TLS-SB-IA6-12 (6.0-7.0)03161C	ARS1-10-00591-002	GAM-A-020	U-238	1.309	0.29917	0.3147	0.57	0.285	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-16	TLS-SB-IA6-13 (23.0-24.0)03161C	ARS1-10-00591-030	GAM-A-020	U-238	1.0334	0.30063	0.31035	0.561	0.2805	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-17	TLS-SB-IA6-13 (25.0-26.0)03161C	ARS1-10-00591-032	GAM-A-020	U-238	0.66824	0.30037	0.30434	0.414	0.207	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-18	TLS-SS-IA6-11 (12.0-12.5)03161C	ARS1-10-00591-033	GAM-A-020	U-238	1.0513	0.23177	0.24427	0.482	0.241	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-11	TLS-SS-IA6-12 (1.0-1.5)03161C	ARS1-10-00591-001	GAM-A-020	U-238	0.91739	0.2568	0.26548	0.46	0.23	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-15	TLS-SS-IA6-13 (12.0-12.5)03161C	ARS1-10-00591-028	GAM-A-020	U-238	0.48444	0.31001	0.31214	0.453	0.2265	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-22	TLS-SB-IA6-10 (15.6-16.6)03171C	ARS1-10-00600-008	GAM-A-020	U-238	0.66646	0.31292	0.31691	0.412	0.206	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-24	TLS-SB-IA6-14 (17.4-18.4)03171C	ARS1-10-00600-013	GAM-A-020	U-238	0.84526	0.36011	0.36559	0.478	0.239	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-25	TLS-SB-IA6-18 (8.9-9.9)03171C	ARS1-10-00600-021	GAM-A-020	U-238	0.49308	0.14053	0.14511	0.297	0.1485	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-23	TLS-SS-IA6-14 (12.0-12.5)03171C	ARS1-10-00600-010	GAM-A-020	U-238	0.96885	0.22736	0.23822	0.424	0.212	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03884-27	TLS-SB-IA6-19 (4.0-5.0)031810	ARS1-10-00609-002	GAM-A-020	U-238	0.7311	0.2704	0.27593	0.394	0.197	pCi	g	ARS1-B10-03884		1						
ARS1-B10-03885-04	TLS-SB-IA6-19 (7.2-8.2)031810	ARS1-10-00609-003	GAM-A-020	AM-241	0.003356	0.02337	0.023371	0.039	0.0195	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-05	TLS-SB-IA6-20 (9.0-10.0)031810	ARS1-10-00609-020	GAM-A-020	AM-241	-0.02107	0.032831	0.03285	0.0542	0.0271	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-07	TLS-SB-IA6-22 (3.0-4.0)031810	ARS1-10-00609-031	GAM-A-020	AM-241	0.004258	0.028295	0.028296	0.047	0.0235	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-08	TLS-SB-IA6-22 (8.7-9.7)031810	ARS1-10-00609-032	GAM-A-020	AM-241	0.006034	0.026636	0.026638	0.0442	0.0221	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-06	TLS-SB-IA6-9 (7.4-8.4)031810	ARS1-10-00609-023	GAM-A-020	AM-241	-0.00042	0.040635	0.040635	0.0604	0.0302	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-12	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	GAM-A-020	AM-241	0.017786	0.027909	0.027924	0.0462	0.0231	pCi	g	ARS1-B10-03885		1	U	U				

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ARS1-B10-03885-10	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	GAM-A-020	AM-241	0.029009	0.02712	0.027164	0.0445	0.02225	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-11	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	GAM-A-020	AM-241	0.028127	0.030498	0.030535	0.0502	0.0251	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-09	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	GAM-A-020	AM-241	-0.00362	0.2082	0.2082	0.045	0.0225	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-13	TLS-SB-IA4-13 (7.4-8.4)033010	ARS1-10-00700-018	GAM-A-020	AM-241	-0.00206	0.028561	0.028562	0.0476	0.0238	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-04	TLS-SB-IA6-19 (7.2-8.2)031810	ARS1-10-00609-003	GAM-A-020	RA-226	1.0753	0.39427	0.39776	0.508	0.254	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-05	TLS-SB-IA6-20 (9.0-10.0)031810	ARS1-10-00609-020	GAM-A-020	RA-226	1.9516	0.52136	0.53044	0.641	0.3205	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-07	TLS-SB-IA6-22 (3.0-4.0)031810	ARS1-10-00609-031	GAM-A-020	RA-226	1.9107	0.38024	0.39153	0.488	0.244	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-08	TLS-SB-IA6-22 (8.7-9.7)031810	ARS1-10-00609-032	GAM-A-020	RA-226	2.3972	0.37877	0.39647	0.515	0.2575	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-06	TLS-SB-IA6-9 (7.4-8.4)031810	ARS1-10-00609-023	GAM-A-020	RA-226	2.1003	0.61748	0.6264	0.724	0.362	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-12	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	GAM-A-020	RA-226	1.9831	0.42111	0.4327	0.51	0.255	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-10	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	GAM-A-020	RA-226	1.7069	0.41403	0.42276	0.545	0.2725	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-11	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	GAM-A-020	RA-226	1.8478	0.4876	0.4963	0.67	0.335	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-09	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	GAM-A-020	RA-226	1.8976	0.4258	0.4363	0.506	0.253	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-13	TLS-SB-IA4-13 (7.4-8.4)033010	ARS1-10-00700-018	GAM-A-020	RA-226	1.902	0.36298	0.37469	0.48	0.24	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-04	TLS-SB-IA6-19 (7.2-8.2)031810	ARS1-10-00609-003	GAM-A-020	RA-228	0.42017	0.056021	0.06161	0.0842	0.0421	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-05	TLS-SB-IA6-20 (9.0-10.0)031810	ARS1-10-00609-020	GAM-A-020	RA-228	0.71209	0.072469	0.084312	0.0951	0.04755	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-07	TLS-SB-IA6-22 (3.0-4.0)031810	ARS1-10-00609-031	GAM-A-020	RA-228	1.0674	0.078847	0.10227	0.0888	0.0444	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-08	TLS-SB-IA6-22 (8.7-9.7)031810	ARS1-10-00609-032	GAM-A-020	RA-228	0.6929	0.089617	0.099092	0.0811	0.04055	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-06	TLS-SB-IA6-9 (7.4-8.4)031810	ARS1-10-00609-023	GAM-A-020	RA-228	1.004	0.097413	0.11538	0.1	0.05	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-12	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	GAM-A-020	RA-228	0.9952	0.078535	0.099626	0.0788	0.0394	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-10	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	GAM-A-020	RA-228	0.77811	0.074032	0.087737	0.0801	0.04005	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-11	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	GAM-A-020	RA-228	0.6224	0.063664	0.073971	0.0939	0.04695	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-09	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	GAM-A-020	RA-228	0.78096	0.09584	0.10723	0.0868	0.0434	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-13	TLS-SB-IA4-13 (7.4-8.4)033010	ARS1-10-00700-018	GAM-A-020	RA-228	0.97383	0.1094	0.1245	0.0837	0.04185	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-04	TLS-SB-IA6-19 (7.2-8.2)031810	ARS1-10-00609-003	GAM-A-020	U-234	0.73777	0.15351	0.16323	0.39	0.195	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-05	TLS-SB-IA6-20 (9.0-10.0)031810	ARS1-10-00609-020	GAM-A-020	U-234	1.0609	0.26288	0.27454	0.55	0.275	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-07	TLS-SB-IA6-22 (3.0-4.0)031810	ARS1-10-00609-031	GAM-A-020	U-234	0.72787	0.24802	0.25399	0.407	0.2035	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-08	TLS-SB-IA6-22 (8.7-9.7)031810	ARS1-10-00609-032	GAM-A-020	U-234	0.89964	0.33609	0.34251	0.474	0.237	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-06	TLS-SB-IA6-9 (7.4-8.4)031810	ARS1-10-00609-023	GAM-A-020	U-234	1.1096	0.27949	0.29111	0.55	0.275	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-12	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	GAM-A-020	U-234	1.185	0.24432	0.25933	0.441	0.2205	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-10	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	GAM-A-020	U-234	0.49993	0.29025	0.29264	0.436	0.218	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-11	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	GAM-A-020	U-234	0.85971	0.27304	0.28047	0.565	0.2825	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-09	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	GAM-A-020	U-234	1.2295	0.2268	0.24409	0.42	0.21	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-13	TLS-SB-IA4-13 (7.4-8.4)033010	ARS1-10-00700-018	GAM-A-020	U-234	0.85117	0.31037	0.3169	0.429	0.2145	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-04	TLS-SB-IA6-19 (7.2-8.2)031810	ARS1-10-00609-003	GAM-A-020	U-235	0.023287	0.080979	0.080994	0.137	0.0685	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-05	TLS-SB-IA6-20 (9.0-10.0)031810	ARS1-10-00609-020	GAM-A-020	U-235	0.056687	0.10019	0.10027	0.169	0.0845	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-07	TLS-SB-IA6-22 (3.0-4.0)031810	ARS1-10-00609-031	GAM-A-020	U-235	0.030601	0.091061	0.091085	0.153	0.0765	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-08	TLS-SB-IA6-22 (8.7-9.7)031810	ARS1-10-00609-032	GAM-A-020	U-235	0.10021	0.084082	0.084357	0.14	0.07	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-06	TLS-SB-IA6-9 (7.4-8.4)031810	ARS1-10-00609-023	GAM-A-020	U-235	0.062235	0.11779	0.11787	0.197	0.0985	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-12	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	GAM-A-020	U-235	0.053212	0.092503	0.092574	0.154	0.077	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-10	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	GAM-A-020	U-235	0.060524	0.085022	0.085123	0.143	0.0715	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-11	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	GAM-A-020	U-235	0.041464	0.099743	0.099783	0.17	0.085	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-09	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	GAM-A-020	U-235	0.073296	0.087452	0.087596	0.145	0.0725	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-13	TLS-SB-IA4-13 (7.4-8.4)033010	ARS1-10-00700-018	GAM-A-020	U-235	0.072026	0.09097	0.091102	0.152	0.076	pCi	g	ARS1-B10-03885		1	U	U				
ARS1-B10-03885-04	TLS-SB-IA6-19 (7.2-8.2)031810	ARS1-10-00609-003	GAM-A-020	U-238	0.73777	0.15351	0.16323	0.39	0.195	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-05	TLS-SB-IA6-20 (9.0-10.0)031810	ARS1-10-00609-020	GAM-A-020	U-238	1.0609	0.26288	0.27454	0.55	0.275	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-07	TLS-SB-IA6-22 (3.0-4.0)031810	ARS1-10-00609-031	GAM-A-020	U-238	0.72787	0.24802	0.25399	0.407	0.2035	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-08	TLS-SB-IA6-22 (8.7-9.7)031810	ARS1-10-00609-032	GAM-A-020	U-238	0.89964	0.33609	0.34251	0.474	0.237	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-06	TLS-SB-IA6-9 (7.4-8.4)031810	ARS1-10-00609-023	GAM-A-020	U-238	1.1096	0.27949	0.29111	0.55	0.275	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-12	TLS-SB-IA6-2 (14.0-15.0)031910	ARS1-10-00610-012	GAM-A-020	U-238	1.185	0.24432	0.25933	0.441	0.2205	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-10	TLS-SB-IA6-3 (3.0-4.0)031910	ARS1-10-00610-002	GAM-A-020	U-238	0.49993	0.29025	0.29264	0.436	0.218	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-11	TLS-SB-IA6-3 (4.0-5.0)031910	ARS1-10-00610-003	GAM-A-020	U-238	0.85971	0.27304	0.28047	0.565	0.2825	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-09	TLS-SS-IA6-3 (2.4-2.9)03191C	ARS1-10-00610-001	GAM-A-020	U-238	1.2295	0.2268	0.24409	0.42	0.21	pCi	g	ARS1-B10-03885		1						
ARS1-B10-03885-13	TLS-SB-IA4-13 (7.4-8.4)033010	ARS1-10-00700-018	GAM-A-020	U-238	0.85117	0.31037	0.3169	0.429	0.2145	pCi	g	ARS1-B10-03885		1						
ARS1-B10-04148-04	TLS-SB-IA5-11 (11.7-12.7) 022510	ARS1-10-00464-007	GAM-A-020	AM-241	0.36825	0.043056	0.047324	0.0483	0.02415	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-15	TLS-SB-IA3FL-0 (10.6-11.6)030410	ARS1-10-00492-034	GAM-A-020	AM-241	-0.00096	0.022117	0.022117	0.0286	0.0143	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-16	TLS-SB-IA3FL-0 (11.6-12.6)030410	ARS1-10-00492-035	GAM-A-020	AM-241	0.018931	0.019267	0.019294	0.0317	0.01585	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-13	TLS-SB-IA3FL-0 (2.9-3.9)030410	ARS1-10-00492-032	GAM-A-020	AM-241	-0.00502	6.7282	6.7282	0.0355	0.01775	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-14	TLS-SB-IA3FL-0 (4.0-5.0)030410	ARS1-10-00492-033	GAM-A-020	AM-241	0.002348	0.019172	0.019173	0.032	0.016	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-09	TLS-SB-IA3FL-2 (3.0-4.0)030410	ARS1-10-00492-027	GAM-A-020	AM-241	-0.01129	0.082303	0.082305	0.0531	0.02655	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-10	TLS-SB-IA3FL-2 (4.0-5.0)030410	ARS1-10-00492-028	GAM-A-020	AM-241	-0.00847	0.62752	0.62752	0.0352	0.0176	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-11	TLS-SB-IA3FL-2 (5.9-6.9)030410	ARS1-10-00492-029	GAM-A-020	AM-241	0.000884	0.019515	0.019515	0.0326	0.0163	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-12	TLS-SB-IA3FL-2 (7.9-8.9)030410	ARS1-10-00492-030	GAM-A-020	AM-241	0.000892	0.019735	0.019735	0.033	0.0165	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-07	TLS-SB-IA3FL-3 (4.0-5.0)030410	ARS1-10-00492-017	GAM-A-020	AM-241	0.053019	0.029723	0.029857	0.0368	0.0184	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-08	TLS-SB-IA3FL-4 (8.0-9.0)030410	ARS1-10-00492-024	GAM-A-020	AM-241	0.001263	0.027747	0.027747	0.0465	0.02325	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-06	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	GAM-A-020	AM-241	-0.00661	0.23329	0.23329	0.0461	0.02305	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-05	TLS-SB-IA3FL-6 (6.0-7.0)030410	ARS1-10-00492-007	GAM-A-020	AM-241	-0.00788	16.107	16.107	0.0501	0.02505	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-17	TLS-SB-IA1-1 (22.8-23.8) 030810	ARS1-10-00511-009	GAM-A-020	AM-241	0.004651	0.064511	0.064512	0.107	0.0535	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-22	TLS-SB-IA5-B01 (2.0-3.0)031010	ARS1-10-00560-031	GAM-A-020	AM-241	0.003979	0.033941	0.033942	0.0566	0.0283	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-19	TLS-SB-IA5-B02 (7.0-8.0)031010	ARS1-10-00560-019	GAM-A-020	AM-241	0.010903	0.033861	0.033866	0.0565	0.02825	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-20	TLS-SB-IA5-B02 (8.0-9.0)031010	ARS1-10-00560-020	GAM-A-020	AM-241	-0.00056	0.035098	0.035098	0.0524	0.0262	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-21	TLS-SB-IA5-B03 (4.0-5.0)031010	ARS1-10-00560-028	GAM-A-020	AM-241	0.036363	0.037022	0.03707	0.0611	0.03055	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-18	TLS-SS-IA5-B02 (0.5-1.0)031010	ARS1-10-00560-017	GAM-A-020	AM-241	-0.00486	0.24277	0.24277	0.0323	0.01615	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-23	TLS-SB-IA3-BO1 (3.0-4.0)031110	ARS1-10-00576-002	GAM-A-020	AM-241	-0.02158	0.039279	0.039296	0.065	0.0325	pCi	g	ARS1-B10-04148		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04148-04	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	GAM-A-020	RA-226	1.3996	0.41876	0.42458	0.578	0.289	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-12	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	GAM-A-020	RA-226	1.2439	0.3083	0.31423	0.376	0.188	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-15	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	GAM-A-020	RA-226	1.1212	0.21786	0.22465	0.29	0.145	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-16	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	GAM-A-020	RA-226	0.96516	0.25614	0.26066	0.351	0.1755	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-13	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	GAM-A-020	RA-226	1.63	0.35927	0.36845	0.404	0.202	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-14	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	GAM-A-020	RA-226	0.78222	0.20277	0.21828	0.277	0.1385	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-09	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	GAM-A-020	RA-226	1.9023	0.45139	0.46136	0.542	0.271	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-10	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	GAM-A-020	RA-226	0.7637	0.29036	0.30089	0.313	0.1565	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-11	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	GAM-A-020	RA-226	1.0102	0.22524	0.23059	0.377	0.1885	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-07	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	GAM-A-020	RA-226	1.6916	0.33565	0.34617	0.445	0.2225	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-08	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	GAM-A-020	RA-226	1.2328	0.36717	0.37208	0.486	0.243	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-06	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	GAM-A-020	RA-226	1.4055	0.37498	0.38122	0.495	0.2475	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-05	TLS-SB-IA3FL-6 (6.0-7.0)03041C	ARS1-10-00492-007	GAM-A-020	RA-226	0.74522	0.34039	0.34898	0.434	0.217	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-17	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	GAM-A-020	RA-226	4.6822	0.89518	0.92395	1.43	0.715	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-22	TLS-SB-IA5-B01 (2.0-3.0)03101C	ARS1-10-00560-031	GAM-A-020	RA-226	1.4066	0.6299	0.63382	0.672	0.336	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-19	TLS-SB-IA5-B02 (7.0-8.0)03101C	ARS1-10-00560-019	GAM-A-020	RA-226	2.3711	0.51492	0.52847	0.556	0.278	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-20	TLS-SB-IA5-B02 (8.0-9.0)03101C	ARS1-10-00560-020	GAM-A-020	RA-226	1.6084	0.47732	0.48374	0.592	0.296	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-21	TLS-SB-IA5-B03 (4.0-5.0)03101C	ARS1-10-00560-028	GAM-A-020	RA-226	1.6549	0.43559	0.44303	0.725	0.3625	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-18	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	GAM-A-020	RA-226	1.7153	0.31459	0.33187	0.418	0.209	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-23	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	GAM-A-020	RA-226	1.8895	0.67292	0.67954	0.714	0.357	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-04	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	GAM-A-020	RA-228	0.54964	0.072702	0.079949	0.0793	0.03965	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-12	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	GAM-A-020	RA-228	0.61221	0.062445	0.072768	0.063	0.0315	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-15	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	GAM-A-020	RA-228	0.50299	0.045469	0.054859	0.0594	0.0297	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-16	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	GAM-A-020	RA-228	0.42439	0.03904	0.04673	0.0502	0.0251	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-13	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	GAM-A-020	RA-228	0.74576	0.059541	0.075202	0.0532	0.0266	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-14	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	GAM-A-020	RA-228	0.60603	0.06361	0.077337	0.0642	0.0321	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-09	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	GAM-A-020	RA-228	0.9767	0.10729	0.123	0.0969	0.04845	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-10	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	GAM-A-020	RA-228	0.71686	0.049115	0.071551	0.0607	0.03035	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-11	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	GAM-A-020	RA-228	0.70463	0.060974	0.074611	0.0501	0.02505	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-07	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	GAM-A-020	RA-228	0.88987	0.050068	0.073529	0.0681	0.03405	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-08	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	GAM-A-020	RA-228	0.72604	0.081565	0.092822	0.0805	0.04025	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-06	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	GAM-A-020	RA-228	0.7467	0.081453	0.093333	0.0844	0.0422	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-05	TLS-SB-IA3FL-6 (6.0-7.0)03041C	ARS1-10-00492-007	GAM-A-020	RA-228	0.7507	0.097341	0.11155	0.0913	0.04565	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-17	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	GAM-A-020	RA-228	0.76087	0.10395	0.11385	0.131	0.0655	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-22	TLS-SB-IA5-B01 (2.0-3.0)03101C	ARS1-10-00560-031	GAM-A-020	RA-228	0.69513	0.066568	0.078745	0.0816	0.0408	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-19	TLS-SB-IA5-B02 (7.0-8.0)03101C	ARS1-10-00560-019	GAM-A-020	RA-228	0.7356	0.10296	0.11249	0.106	0.053	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-20	TLS-SB-IA5-B02 (8.0-9.0)03101C	ARS1-10-00560-020	GAM-A-020	RA-228	0.59769	0.093776	0.10062	0.0884	0.0442	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-21	TLS-SB-IA5-B03 (4.0-5.0)03101C	ARS1-10-00560-028	GAM-A-020	RA-228	1.0074	0.09588	0.1139	0.101	0.0505	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-18	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	GAM-A-020	RA-228	0.90649	0.071814	0.091282	0.091	0.0455	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-23	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	GAM-A-020	RA-228	0.8789	0.082229	0.09793	0.103	0.0515	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-04	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	GAM-A-020	U-234	1.0277	0.26357	0.27449	0.505	0.2525	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-12	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	GAM-A-020	U-234	0.73605	0.15834	0.16774	0.294	0.147	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-15	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	GAM-A-020	U-234	0.41121	0.16345	0.16635	0.241	0.1205	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-16	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	GAM-A-020	U-234	0.56419	0.15497	0.16058	0.302	0.151	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-13	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	GAM-A-020	U-234	0.43942	0.17794	0.18084	0.31	0.155	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-14	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	GAM-A-020	U-234	0.57584	0.16171	0.16639	0.3	0.15	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-09	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	GAM-A-020	U-234	0.5247	0.20499	0.20857	0.428	0.214	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-10	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	GAM-A-020	U-234	0.70401	0.16564	0.17244	0.325	0.1625	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-11	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	GAM-A-020	U-234	0.53264	0.23885	0.24203	0.329	0.1645	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-07	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	GAM-A-020	U-234	0.66	0.29735	0.30139	0.401	0.2005	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-08	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	GAM-A-020	U-234	0.61266	0.21303	0.21772	0.436	0.218	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-06	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	GAM-A-020	U-234	0.8744	0.2176	0.22732	0.407	0.2035	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-05	TLS-SB-IA3FL-6 (6.0-7.0)03041C	ARS1-10-00492-007	GAM-A-020	U-234	0.8306	0.24173	0.24826	0.464	0.232	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-17	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	GAM-A-020	U-234	26.534	0.98645	2.2257	1	0.5	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-22	TLS-SB-IA5-B01 (2.0-3.0)03101C	ARS1-10-00560-031	GAM-A-020	U-234	1.029	0.29481	0.30464	0.593	0.2965	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-19	TLS-SB-IA5-B02 (7.0-8.0)03101C	ARS1-10-00560-019	GAM-A-020	U-234	0.8455	0.28124	0.28801	0.507	0.2535	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-20	TLS-SB-IA5-B02 (8.0-9.0)03101C	ARS1-10-00560-020	GAM-A-020	U-234	0.6931	0.234	0.23974	0.428	0.214	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-21	TLS-SB-IA5-B03 (4.0-5.0)03101C	ARS1-10-00560-028	GAM-A-020	U-234	1.3413	0.36081	0.37399	0.637	0.3185	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-18	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	GAM-A-020	U-234	0.79003	0.27249	0.27841	0.356	0.178	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-23	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	GAM-A-020	U-234	1.1359	0.28713	0.29937	0.64	0.32	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-04	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	GAM-A-020	U-235	0.000708	0.092029	0.092029	0.157	0.0785	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-12	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	GAM-A-020	U-235	0.02364	0.066394	0.066413	0.111	0.0555	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-15	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	GAM-A-020	U-235	0.020292	0.057377	0.057393	0.0962	0.0481	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-16	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	GAM-A-020	U-235	0.033372	0.058761	0.058805	0.0989	0.04945	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-13	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	GAM-A-020	U-235	0.016182	0.070802	0.070811	0.119	0.0595	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-14	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	GAM-A-020	U-235	0.045863	0.062483	0.062669	0.0765	0.03825	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-09	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	GAM-A-020	U-235	0.1005	0.10172	0.10195	0.168	0.084	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-10	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	GAM-A-020	U-235	0.04223	0.060307	0.06047	0.0791	0.03955	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-11	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	GAM-A-020	U-235	0.027345	0.060095	0.060124	0.101	0.0505	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-07	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	GAM-A-020	U-235	0.061469	0.076182	0.076298	0.127	0.0635	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-08	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	GAM-A-020	U-235	0.015072	0.086465	0.086471	0.146	0.073	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-06	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	GAM-A-020	U-235	0.035179	0.095431	0.095461	0.16	0.08	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-05	TLS-SB-IA3FL-6 (6.0-7.0)03041C	ARS1-10-00492-007	GAM-A-020	U-235	0.040465	0.068608	0.068739	0.0985	0.04925	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-17	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	GAM-A-020	U-235	2.3653	0.24498	0.29297	0.271	0.1355	pCi	g	ARS1-B10-04148		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04148-22	TLS-SB-IA5-B01 (2.0-3.0)03101C	ARS1-10-00560-031	GAM-A-020	U-235	0.067369	0.10749	0.10758	0.181	0.0905	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-19	TLS-SB-IA5-B02 (7.0-8.0)03101C	ARS1-10-00560-019	GAM-A-020	U-235	0.040216	0.1129	0.11294	0.19	0.095	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-20	TLS-SB-IA5-B02 (8.0-9.0)03101C	ARS1-10-00560-020	GAM-A-020	U-235	0.04005	0.1025	0.10253	0.172	0.086	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-21	TLS-SB-IA5-B03 (4.0-5.0)03101C	ARS1-10-00560-028	GAM-A-020	U-235	0.08838	0.11448	0.11464	0.192	0.096	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-18	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	GAM-A-020	U-235	0.071839	0.075255	0.075514	0.125	0.0625	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-23	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	GAM-A-020	U-235	0.13938	0.11475	0.11514	0.191	0.0955	pCi	g	ARS1-B10-04148		1	U	U				
ARS1-B10-04148-04	TLS-SB-IA5-11 (11.7-12.7) 02251C	ARS1-10-00464-007	GAM-A-020	U-238	1.0277	0.26357	0.27449	0.505	0.2525	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-12	TLS-SB-IA3FL-2 (7.9-8.9)03041C	ARS1-10-00492-030	GAM-A-020	U-238	0.73605	0.15834	0.16774	0.294	0.147	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-15	TLS-SB-IA3FL-0 (10.6-11.6)03041C	ARS1-10-00492-034	GAM-A-020	U-238	0.41121	0.16345	0.16635	0.241	0.1205	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-16	TLS-SB-IA3FL-0 (11.6-12.6)03041C	ARS1-10-00492-035	GAM-A-020	U-238	0.56419	0.15497	0.16058	0.302	0.151	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-13	TLS-SB-IA3FL-0 (2.9-3.9)03041C	ARS1-10-00492-032	GAM-A-020	U-238	0.43942	0.17794	0.18084	0.31	0.155	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-14	TLS-SB-IA3FL-0 (4.0-5.0)03041C	ARS1-10-00492-033	GAM-A-020	U-238	0.57584	0.16171	0.16639	0.3	0.15	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-09	TLS-SB-IA3FL-2 (3.0-4.0)03041C	ARS1-10-00492-027	GAM-A-020	U-238	0.5247	0.20499	0.20857	0.428	0.214	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-10	TLS-SB-IA3FL-2 (4.0-5.0)03041C	ARS1-10-00492-028	GAM-A-020	U-238	0.70401	0.16564	0.17244	0.325	0.1625	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-11	TLS-SB-IA3FL-2 (5.9-6.9)03041C	ARS1-10-00492-029	GAM-A-020	U-238	0.53264	0.23885	0.24203	0.329	0.1645	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-07	TLS-SB-IA3FL-3 (4.0-5.0)03041C	ARS1-10-00492-017	GAM-A-020	U-238	0.66	0.29735	0.30139	0.401	0.2005	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-08	TLS-SB-IA3FL-4 (8.0-9.0)03041C	ARS1-10-00492-024	GAM-A-020	U-238	0.61266	0.21303	0.21772	0.436	0.218	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-06	TLS-SB-IA3FL-6 (13.0-14.0)030410D	ARS1-10-00492-010	GAM-A-020	U-238	0.8744	0.2176	0.22732	0.407	0.2035	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-05	TLS-SB-IA3FL-6 (6.0-7.0)03041C	ARS1-10-00492-007	GAM-A-020	U-238	0.8306	0.24173	0.24826	0.464	0.232	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-17	TLS-SB-IA1-1 (22.8-23.8) 03081C	ARS1-10-00511-009	GAM-A-020	U-238	26.534	0.98645	2.2257	1	0.5	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-22	TLS-SB-IA5-B01 (2.0-3.0)03101C	ARS1-10-00560-031	GAM-A-020	U-238	1.029	0.29481	0.30464	0.593	0.2965	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-19	TLS-SB-IA5-B02 (7.0-8.0)03101C	ARS1-10-00560-019	GAM-A-020	U-238	0.8455	0.28124	0.28801	0.507	0.2535	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-20	TLS-SB-IA5-B02 (8.0-9.0)03101C	ARS1-10-00560-020	GAM-A-020	U-238	0.6931	0.234	0.23974	0.428	0.214	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-21	TLS-SB-IA5-B03 (4.0-5.0)03101C	ARS1-10-00560-028	GAM-A-020	U-238	1.3413	0.36081	0.37399	0.637	0.3185	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-18	TLS-SS-IA5-B02 (0.5-1.0)03101C	ARS1-10-00560-017	GAM-A-020	U-238	0.79003	0.27249	0.27841	0.356	0.178	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04148-23	TLS-SB-IA3-BO1 (3.0-4.0)03111C	ARS1-10-00576-002	GAM-A-020	U-238	1.1359	0.28713	0.29937	0.64	0.32	pCi	g	ARS1-B10-04148		1						
ARS1-B10-04178-11	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	GAM-A-020	AM-241	-0.00887	0.12534	0.12535	0.0447	0.02235	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-10	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	GAM-A-020	AM-241	0.005045	0.031241	0.031242	0.0525	0.02625	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-04	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	GAM-A-020	AM-241	-0.0029	0.11514	0.11514	0.0433	0.02165	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-05	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	GAM-A-020	AM-241	-0.00095	0.034144	0.034144	0.0459	0.02295	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-06	TLS-SB-IA5-5 (37.2-38.2) 022310D	ARS1-10-00443-006	GAM-A-020	AM-241	-0.01004	0.12122	0.12122	0.047	0.0235	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-14	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	GAM-A-020	AM-241	0.014531	0.036449	0.036457	0.0609	0.03045	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-15	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	GAM-A-020	AM-241	0.031801	0.037547	0.037585	0.0618	0.0309	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-16	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	GAM-A-020	AM-241	0.004798	0.034997	0.034998	0.0582	0.0291	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-12	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	GAM-A-020	AM-241	0.0156	0.026804	0.026817	0.0443	0.02215	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-13	TLS-SB-IA5-6 (9.0-10.0) 022310D	ARS1-10-00443-027	GAM-A-020	AM-241	-0.01352	0.088102	0.088105	0.0438	0.0219	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-08	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	GAM-A-020	AM-241	-0.00454	0.094749	0.094749	0.0483	0.02415	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-09	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	GAM-A-020	AM-241	-0.00093	0.037514	0.037514	0.0436	0.0218	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-07	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	GAM-A-020	AM-241	0.014174	0.032618	0.032626	0.0541	0.02705	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-18	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	GAM-A-020	AM-241	0.004838	0.03042	0.030421	0.0511	0.02555	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-19	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 0224	ARS1-10-00463-003	GAM-A-020	AM-241	-0.01719	0.026964	0.026979	0.0445	0.02225	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-17	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	GAM-A-020	AM-241	0.009452	0.0279	0.027904	0.0466	0.0233	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-11	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	GAM-A-020	RA-226	1.0667	0.3027	0.30715	0.505	0.2525	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-10	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	GAM-A-020	RA-226	2.2795	0.48811	0.50066	0.594	0.297	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-04	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	GAM-A-020	RA-226	1.5103	0.3956	0.40278	0.47	0.235	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-05	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	GAM-A-020	RA-226	1.3837	0.37352	0.37959	0.485	0.2425	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-06	TLS-SB-IA5-5 (37.2-38.2) 022310D	ARS1-10-00443-006	GAM-A-020	RA-226	1.0678	0.30989	0.31425	0.52	0.26	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-14	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	GAM-A-020	RA-226	2.2478	0.54667	0.55817	0.637	0.3185	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-15	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	GAM-A-020	RA-226	2.49	0.87431	0.88316	0.848	0.424	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-16	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	GAM-A-020	RA-226	1.553	0.39871	0.40622	0.552	0.276	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-12	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	GAM-A-020	RA-226	1.3145	0.48148	0.48595	0.571	0.2855	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-13	TLS-SB-IA5-6 (9.0-10.0) 022310D	ARS1-10-00443-027	GAM-A-020	RA-226	0.94454	0.3296	0.33282	0.566	0.283	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-08	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	GAM-A-020	RA-226	1.4419	0.41572	0.42165	0.527	0.2635	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-09	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	GAM-A-020	RA-226	1.6184	0.43801	0.44922	0.549	0.2745	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-07	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	GAM-A-020	RA-226	1.6806	0.6335	0.63906	0.65	0.325	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-18	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	GAM-A-020	RA-226	1.5202	0.38052	0.3877	0.516	0.258	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-19	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 0224	ARS1-10-00463-003	GAM-A-020	RA-226	1.1678	0.33562	0.34067	0.508	0.254	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-17	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	GAM-A-020	RA-226	1.0241	0.31832	0.32223	0.541	0.2705	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-11	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	GAM-A-020	RA-228	0.66174	0.076379	0.086398	0.0669	0.03345	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-10	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	GAM-A-020	RA-228	0.74143	0.07364	0.086429	0.089	0.0445	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-04	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	GAM-A-020	RA-228	0.64859	0.070905	0.081385	0.0803	0.04015	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-05	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	GAM-A-020	RA-228	0.7194	0.070751	0.083265	0.0858	0.0429	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-06	TLS-SB-IA5-5 (37.2-38.2) 022310D	ARS1-10-00443-006	GAM-A-020	RA-228	0.67222	0.078413	0.088495	0.0711	0.03555	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-14	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	GAM-A-020	RA-228	0.85812	0.11632	0.12777	0.114	0.057	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-15	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	GAM-A-020	RA-228	1.2297	0.092457	0.11868	0.112	0.056	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-16	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	GAM-A-020	RA-228	0.69047	0.067643	0.079507	0.0933	0.04665	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-12	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	GAM-A-020	RA-228	0.43683	0.066641	0.071692	0.0785	0.03925	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-13	TLS-SB-IA5-6 (9.0-10.0) 022310D	ARS1-10-00443-027	GAM-A-020	RA-228	0.49502	0.068929	0.075258	0.0733	0.03665	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-08	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	GAM-A-020	RA-228	0.62077	0.070877	0.080366	0.0757	0.03785	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-09	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	GAM-A-020	RA-228	0.68344	0.11253	0.12028	0.0964	0.0482	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-07	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	GAM-A-020	RA-228	0.74727	0.09687	0.1069	0.0829	0.04145	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-18	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	GAM-A-020	RA-228	0.77304	0.097304	0.10814	0.0939	0.04695	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-19	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 0224	ARS1-10-00463-003	GAM-A-020	RA-228	0.41596	0.064936	0.069644	0.0908	0.0454	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-17	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	GAM-A-020	RA-228	0.57983	0.071619	0.079883	0.0821	0.04105	pCi	g	ARS1-B10-04178		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04178-11	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	GAM-A-020	U-234	0.97894	0.27743	0.28658	0.468	0.234	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-10	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	GAM-A-020	U-234	1.1604	0.26637	0.2803	0.488	0.244	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-04	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	GAM-A-020	U-234	0.79557	0.20835	0.21637	0.395	0.1975	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-05	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	GAM-A-020	U-234	0.86241	0.22448	0.23366	0.416	0.208	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-06	TLS-SB-IA5-5 (37.2-38.2) 022310C	ARS1-10-00443-006	GAM-A-020	U-234	0.72874	0.25498	0.26053	0.447	0.2235	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-14	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	GAM-A-020	U-234	0.80665	0.27154	0.27791	0.517	0.2585	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-15	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	GAM-A-020	U-234	1.6403	0.3796	0.39884	0.682	0.341	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-16	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	GAM-A-020	U-234	0.87131	0.25477	0.26293	0.507	0.2535	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-12	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	GAM-A-020	U-234	0.46377	0.22436	0.22702	0.461	0.2305	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-13	TLS-SB-IA5-6 (9.0-10.0) 022310C	ARS1-10-00443-027	GAM-A-020	U-234	0.80292	0.28399	0.29004	0.493	0.2465	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-08	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	GAM-A-020	U-234	0.97173	0.22436	0.23596	0.424	0.212	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-09	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	GAM-A-020	U-234	0.75437	0.19349	0.20103	0.463	0.2315	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-07	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	GAM-A-020	U-234	0.82427	0.28048	0.28714	0.521	0.2605	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-18	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	GAM-A-020	U-234	0.92016	0.24528	0.25485	0.457	0.2285	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-19	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 02241	ARS1-10-00463-003	GAM-A-020	U-234	0.60645	0.2385	0.24276	0.471	0.2355	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-17	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	GAM-A-020	U-234	0.92466	0.26182	0.27047	0.485	0.2425	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-11	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	GAM-A-020	U-235	0.020979	0.085344	0.085356	0.144	0.072	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-10	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	GAM-A-020	U-235	0.095361	0.10688	0.10708	0.178	0.089	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-04	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	GAM-A-020	U-235	0.008693	0.085621	0.085623	0.144	0.072	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-05	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	GAM-A-020	U-235	0.017295	0.092492	0.0925	0.156	0.078	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-06	TLS-SB-IA5-5 (37.2-38.2) 022310C	ARS1-10-00443-006	GAM-A-020	U-235	0.047658	0.085109	0.08517	0.143	0.0715	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-14	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	GAM-A-020	U-235	0.055703	0.1241	0.12416	0.209	0.1045	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-15	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	GAM-A-020	U-235	0.065496	0.12968	0.12975	0.218	0.109	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-16	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	GAM-A-020	U-235	0.021113	0.09952	0.09953	0.168	0.084	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-12	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	GAM-A-020	U-235	0.027344	0.082932	0.082953	0.142	0.071	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-13	TLS-SB-IA5-6 (9.0-10.0) 022310C	ARS1-10-00443-027	GAM-A-020	U-235	0.024403	0.08456	0.084577	0.144	0.072	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-08	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	GAM-A-020	U-235	0.03188	0.094354	0.094378	0.159	0.0795	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-09	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	GAM-A-020	U-235	0.022546	0.087505	0.087527	0.148	0.074	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-07	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	GAM-A-020	U-235	0.038402	0.10483	0.10486	0.177	0.0885	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-18	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	GAM-A-020	U-235	0.054254	0.10162	0.10169	0.17	0.085	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-19	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 02241	ARS1-10-00463-003	GAM-A-020	U-235	0.028312	0.079741	0.079764	0.136	0.068	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-17	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	GAM-A-020	U-235	0.010256	0.084856	0.084859	0.145	0.0725	pCi	g	ARS1-B10-04178		1	U	U				
ARS1-B10-04178-11	TLS-SB-IA5-4 (57.4-58.4) 02231C	ARS1-10-00443-024	GAM-A-020	U-238	0.97894	0.27743	0.28658	0.468	0.234	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-10	TLS-SB-IA5-4 (7.0-8.0) 02231C	ARS1-10-00443-020	GAM-A-020	U-238	1.1604	0.26637	0.2803	0.488	0.244	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-04	TLS-SB-IA5-5 (34.0-35.0) 02231C	ARS1-10-00443-004	GAM-A-020	U-238	0.79557	0.20835	0.21637	0.395	0.1975	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-05	TLS-SB-IA5-5 (37.2-38.2) 02231C	ARS1-10-00443-005	GAM-A-020	U-238	0.86241	0.22448	0.23366	0.416	0.208	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-06	TLS-SB-IA5-5 (37.2-38.2) 022310C	ARS1-10-00443-006	GAM-A-020	U-238	0.72874	0.25498	0.26053	0.447	0.2235	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-14	TLS-SB-IA5-6 (17.2-18.2) 02231C	ARS1-10-00443-028	GAM-A-020	U-238	0.80665	0.27154	0.27791	0.517	0.2585	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-15	TLS-SB-IA5-6 (19.0-20.0) 02231C	ARS1-10-00443-029	GAM-A-020	U-238	1.6403	0.3796	0.39884	0.682	0.341	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-16	TLS-SB-IA5-6 (47.1-48.1) 02231C	ARS1-10-00443-030	GAM-A-020	U-238	0.87131	0.25477	0.26293	0.507	0.2535	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-12	TLS-SB-IA5-6 (9.0-10.0) 02231C	ARS1-10-00443-026	GAM-A-020	U-238	0.46377	0.22436	0.22702	0.461	0.2305	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-13	TLS-SB-IA5-6 (9.0-10.0) 022310C	ARS1-10-00443-027	GAM-A-020	U-238	0.80292	0.28399	0.29004	0.493	0.2465	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-08	TLS-SB-IA5-7 (33.7-35.0) 02231C	ARS1-10-00443-012	GAM-A-020	U-238	0.97173	0.22436	0.23596	0.424	0.212	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-09	TLS-SS-IA5-4 (1.5-2.0) 02231C	ARS1-10-00443-019	GAM-A-020	U-238	0.75437	0.19349	0.20103	0.463	0.2315	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-07	TLS-SS-IA5-7 (0.0-0.5) 02231C	ARS1-10-00443-007	GAM-A-020	U-238	0.82427	0.28048	0.28714	0.521	0.2605	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-18	TLS-SB-IA5-2 (14.0-15.0) 02241C	ARS1-10-00463-002	GAM-A-020	U-238	0.92016	0.24528	0.25485	0.457	0.2285	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-19	TLS-SB-IA5-2 (19.3-20.0/22.4-22.7) 02241	ARS1-10-00463-003	GAM-A-020	U-238	0.60645	0.2385	0.24276	0.471	0.2355	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04178-17	TLS-SS-IA5-2 (0.4-0.9) 02241C	ARS1-10-00463-001	GAM-A-020	U-238	0.92466	0.26182	0.27047	0.485	0.2425	pCi	g	ARS1-B10-04178		1						
ARS1-B10-04295-04	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	GAM-A-020	AM-241	0.007391	0.030086	0.030088	0.0502	0.0251	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-05	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	GAM-A-020	AM-241	0.002703	0.028632	0.028633	0.048	0.024	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-06	TLS-SB-IA3-15 (4.0-5.0) 021710C	ARS1-10-00282-022	GAM-A-020	AM-241	0.008015	0.028987	0.028991	0.0482	0.0241	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-15	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	GAM-A-020	AM-241	-0.00371	0.21678	0.21678	0.0552	0.0276	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-12	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	GAM-A-020	AM-241	-0.01069	0.16916	0.16916	0.0351	0.01755	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-13	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	GAM-A-020	AM-241	0.008388	0.031598	0.031601	0.0531	0.02655	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-10	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	GAM-A-020	AM-241	0.018085	0.027504	0.027521	0.0455	0.02275	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-11	TLS-SB-IA5-12 (3.3-4.3) 02241OC	ARS1-10-00463-009	GAM-A-020	AM-241	0.000176	0.02225	0.02225	0.0372	0.0186	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-14	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	GAM-A-020	AM-241	0.016028	0.02893	0.028943	0.0479	0.02395	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-07	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	GAM-A-020	AM-241	-0.00843	1.0895	1.0895	0.0473	0.02365	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-08	TLS-SB-IA5-2 (59.0-60.0) 02241OC	ARS1-10-00463-006	GAM-A-020	AM-241	-0.01983	0.050902	0.050912	0.0495	0.02475	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-09	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	GAM-A-020	AM-241	-0.00361	0.068618	0.068619	0.0729	0.03645	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-16	TLS-SB-IA5-1 (4.0-5.0) 02251OC	ARS1-10-00464-003	GAM-A-020	AM-241	0.000762	0.028637	0.028637	0.048	0.024	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-21	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	GAM-A-020	AM-241	0.013782	0.028334	0.028343	0.0472	0.0236	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-19	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	GAM-A-020	AM-241	0.048998	0.02947	0.029588	0.0407	0.02035	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-20	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	GAM-A-020	AM-241	0.0125	0.028998	0.029005	0.0481	0.02405	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-18	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	GAM-A-020	AM-241	0.016516	0.036512	0.036521	0.0608	0.0304	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-24	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	GAM-A-020	AM-241	0.031492	0.019014	0.019085	0.0271	0.01355	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-25	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	GAM-A-020	AM-241	0.018461	0.029452	0.029468	0.0489	0.02445	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-26	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	GAM-A-020	AM-241	0.027161	0.024409	0.024453	0.0351	0.01755	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-22	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	GAM-A-020	AM-241	0.011835	0.022543	0.022551	0.0376	0.0188	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-23	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	GAM-A-020	AM-241	0.025826	0.023609	0.023642	0.0321	0.01605	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-17	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	GAM-A-020	AM-241	0.011774	0.030119	0.030125	0.0502	0.0251	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-04	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	GAM-A-020	RA-226	1.4011	0.30725	0.33964	0.405	0.2025	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-05	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	GAM-A-020	RA-226	1.6408	0.46941	0.47621	0.543	0.2715	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-06	TLS-SB-IA3-15 (4.0-5.0) 021710C	ARS1-10-00282-022	GAM-A-020	RA-226	1.3829	0.40367	0.40956	0.564	0.282	pCi	g	ARS1-B10-04295		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04295-15	TLS-SB-IA5-1 (4.0-5.0) 022510	ARS1-10-00464-002	GAM-A-020	RA-226	1.7978	0.49307	0.50125	0.584	0.292	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-12	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	GAM-A-020	RA-226	0.70986	0.31567	0.31757	0.447	0.2235	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-13	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	GAM-A-020	RA-226	1.8109	0.4941	0.50196	0.642	0.321	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-10	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	GAM-A-020	RA-226	1.5755	0.51829	0.52426	0.67	0.335	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-11	TLS-SB-IA5-12 (3.3-4.3) 022410D	ARS1-10-00463-009	GAM-A-020	RA-226	1.2298	0.33943	0.36243	0.344	0.172	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-14	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	GAM-A-020	RA-226	1.7065	0.50492	0.5121	0.594	0.297	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-07	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	GAM-A-020	RA-226	1.399	0.43495	0.44029	0.52	0.26	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-08	TLS-SB-IA5-2 (59.0-60.0) 022410D	ARS1-10-00463-006	GAM-A-020	RA-226	1.7337	0.43933	0.44785	0.543	0.2715	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-09	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	GAM-A-020	RA-226	2.2275	0.6747	0.68341	0.874	0.437	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-16	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	GAM-A-020	RA-226	1.7775	0.45563	0.46383	0.535	0.2675	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-21	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	GAM-A-020	RA-226	1.2989	0.49467	0.49873	0.544	0.272	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-19	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	GAM-A-020	RA-226	1.6975	0.4141	0.42233	0.519	0.2595	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-20	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	GAM-A-020	RA-226	1.6349	0.46859	0.47568	0.549	0.2745	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-18	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	GAM-A-020	RA-226	1.6074	0.38763	0.4217	0.516	0.258	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-24	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	GAM-A-020	RA-226	1.4884	0.32422	0.33228	0.417	0.2085	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-25	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	GAM-A-020	RA-226	1.3034	0.36911	0.37485	0.484	0.242	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-26	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	GAM-A-020	RA-226	1.0883	0.31983	0.32422	0.447	0.2235	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-22	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	GAM-A-020	RA-226	1.157	0.34557	0.35041	0.437	0.2185	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-23	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	GAM-A-020	RA-226	0.72671	0.25898	0.26964	0.368	0.184	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-17	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	GAM-A-020	RA-226	1.9347	0.4532	0.46347	0.535	0.2675	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-04	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	GAM-A-020	RA-228	0.87777	0.087304	0.10808	0.0931	0.04655	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-05	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	GAM-A-020	RA-228	0.81839	0.073707	0.089034	0.0976	0.0488	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-06	TLS-SB-IA3-15 (4.0-5.0) 021710D	ARS1-10-00282-022	GAM-A-020	RA-228	0.71333	0.077721	0.088903	0.0909	0.04545	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-15	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	GAM-A-020	RA-228	0.93845	0.075426	0.095028	0.0989	0.04945	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-12	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	GAM-A-020	RA-228	0.48051	0.070061	0.07595	0.0643	0.03215	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-13	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	GAM-A-020	RA-228	0.89154	0.093328	0.10803	0.104	0.052	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-10	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	GAM-A-020	RA-228	0.67523	0.10042	0.10841	0.0899	0.04495	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-11	TLS-SB-IA5-12 (3.3-4.3) 022410D	ARS1-10-00463-009	GAM-A-020	RA-228	0.70064	0.079637	0.094489	0.0717	0.03585	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-14	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	GAM-A-020	RA-228	0.70528	0.067128	0.079547	0.0719	0.03595	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-07	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	GAM-A-020	RA-228	0.70438	0.072854	0.08459	0.0852	0.0426	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-08	TLS-SB-IA5-2 (59.0-60.0) 022410D	ARS1-10-00463-006	GAM-A-020	RA-228	0.77939	0.094344	0.10586	0.0835	0.04175	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-09	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	GAM-A-020	RA-228	1.028	0.13638	0.15011	0.184	0.092	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-16	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	GAM-A-020	RA-228	0.78411	0.074902	0.088881	0.0757	0.03785	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-21	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	GAM-A-020	RA-228	0.60067	0.080112	0.0881	0.0731	0.03655	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-19	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	GAM-A-020	RA-228	0.78233	0.075302	0.089161	0.0764	0.0382	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-20	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	GAM-A-020	RA-228	0.63208	0.10123	0.10822	0.085	0.0425	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-18	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	GAM-A-020	RA-228	0.87712	0.080447	0.10259	0.105	0.0525	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-24	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	GAM-A-020	RA-228	0.67282	0.064292	0.076284	0.0672	0.0336	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-25	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	GAM-A-020	RA-228	0.69818	0.082017	0.092607	0.0788	0.0394	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-26	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	GAM-A-020	RA-228	0.69499	0.093824	0.10296	0.0796	0.0398	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-22	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	GAM-A-020	RA-228	0.4211	0.057225	0.062829	0.0785	0.03925	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-23	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	GAM-A-020	RA-228	0.43451	0.065671	0.072852	0.0841	0.04205	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-17	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	GAM-A-020	RA-228	0.62925	0.076551	0.085804	0.0795	0.03975	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-04	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	GAM-A-020	U-234	0.82855	0.22832	0.23519	0.459	0.2295	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-05	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	GAM-A-020	U-234	0.69303	0.28471	0.28944	0.399	0.1995	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-06	TLS-SB-IA3-15 (4.0-5.0) 021710D	ARS1-10-00282-022	GAM-A-020	U-234	0.82432	0.25529	0.26259	0.488	0.244	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-15	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	GAM-A-020	U-234	0.77431	0.25991	0.26605	0.482	0.241	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-12	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	GAM-A-020	U-234	0.76515	0.16527	0.17455	0.411	0.2055	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-13	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	GAM-A-020	U-234	0.67001	0.31436	0.31837	0.468	0.234	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-10	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	GAM-A-020	U-234	1.0951	0.31618	0.32656	0.614	0.307	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-11	TLS-SB-IA5-12 (3.3-4.3) 022410D	ARS1-10-00463-009	GAM-A-020	U-234	0.61159	0.15444	0.15995	0.344	0.172	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-14	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	GAM-A-020	U-234	0.73675	0.23533	0.24167	0.46	0.23	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-07	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	GAM-A-020	U-234	0.85072	0.19092	0.20135	0.354	0.177	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-08	TLS-SB-IA5-2 (59.0-60.0) 022410D	ARS1-10-00463-006	GAM-A-020	U-234	0.85826	0.26949	0.27675	0.491	0.2455	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-09	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	GAM-A-020	U-234	1.2574	0.52117	0.52967	0.7	0.35	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-16	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	GAM-A-020	U-234	0.74254	0.20662	0.21368	0.467	0.2335	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-21	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	GAM-A-020	U-234	0.77677	0.23659	0.24336	0.481	0.2405	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-19	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	GAM-A-020	U-234	0.4975	0.31966	0.32184	0.443	0.2215	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-20	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	GAM-A-020	U-234	0.71829	0.24316	0.24899	0.491	0.2455	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-18	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	GAM-A-020	U-234	0.99838	0.28066	0.28877	0.539	0.2695	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-24	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	GAM-A-020	U-234	0.74023	0.16334	0.17214	0.364	0.182	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-25	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	GAM-A-020	U-234	0.89331	0.24427	0.25291	0.442	0.221	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-26	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	GAM-A-020	U-234	0.45762	0.24013	0.24258	0.363	0.1815	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-22	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	GAM-A-020	U-234	0.53438	0.17946	0.18369	0.353	0.1765	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-23	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	GAM-A-020	U-234	0.51426	0.19842	0.20148	0.38	0.19	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-17	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	GAM-A-020	U-234	0.8395	0.2492	0.25671	0.46	0.23	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-04	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	GAM-A-020	U-235	0.11369	0.077848	0.078759	0.103	0.0515	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-05	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	GAM-A-020	U-235	0.059515	0.096379	0.096463	0.161	0.0805	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-06	TLS-SB-IA3-15 (4.0-5.0) 021710D	ARS1-10-00282-022	GAM-A-020	U-235	0.01121	0.093515	0.093518	0.158	0.079	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-15	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	GAM-A-020	U-235	0.002517	0.10379	0.10379	0.175	0.0875	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-12	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	GAM-A-020	U-235	0.023265	0.065922	0.065941	0.112	0.056	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-13	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	GAM-A-020	U-235	0.029916	0.11771	0.11772	0.199	0.0995	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-10	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	GAM-A-020	U-235	-0.00975	0.13291	0.13291	0.189	0.0945	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-11	TLS-SB-IA5-12 (3.3-4.3) 022410D	ARS1-10-00463-009	GAM-A-020	U-235	0.038785	0.055433	0.055582	0.0774	0.0387	pCi	g	ARS1-B10-04295		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04295-14	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	GAM-A-020	U-235	0.046636	0.095395	0.095448	0.161	0.0805	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-07	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	GAM-A-020	U-235	0.002921	0.091182	0.091183	0.154	0.077	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-08	TLS-SB-IA5-2 (59.0-60.0) 022410D	ARS1-10-00463-006	GAM-A-020	U-235	0.001025	0.10338	0.10338	0.175	0.0875	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-09	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	GAM-A-020	U-235	0.085082	0.14775	0.14786	0.249	0.1245	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-16	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	GAM-A-020	U-235	0.091595	0.088369	0.088588	0.147	0.0735	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-21	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	GAM-A-020	U-235	0.01502	0.089204	0.08921	0.151	0.0755	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-19	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	GAM-A-020	U-235	0.02419	0.097052	0.097066	0.163	0.0815	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-20	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	GAM-A-020	U-235	0.007703	0.090398	0.090399	0.154	0.077	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-18	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	GAM-A-020	U-235	0.028448	0.091661	0.091709	0.154	0.077	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-24	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	GAM-A-020	U-235	0.057337	0.064828	0.064945	0.108	0.054	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-25	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	GAM-A-020	U-235	0.036922	0.096384	0.096417	0.162	0.081	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-26	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	GAM-A-020	U-235	0.040436	0.088484	0.088527	0.148	0.074	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-22	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	GAM-A-020	U-235	0.03708	0.07994	0.07998	0.134	0.067	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-23	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	GAM-A-020	U-235	0.027389	0.063011	0.063077	0.106	0.053	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-17	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	GAM-A-020	U-235	0.022876	0.096656	0.096669	0.163	0.0815	pCi	g	ARS1-B10-04295		1	U	U				
ARS1-B10-04295-04	TLS-SB-IA3-6(6.0-7.0)02121C	ARS1-10-00243-019	GAM-A-020	U-238	0.82855	0.22832	0.23519	0.459	0.2295	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-05	TLS-SB-IA3-6(11.0-12.0)02121C	ARS1-10-00243-020	GAM-A-020	U-238	0.69303	0.28471	0.28944	0.399	0.1995	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-06	TLS-SB-IA3-15 (4.0-5.0) 021710D	ARS1-10-00282-022	GAM-A-020	U-238	0.82432	0.25529	0.26259	0.488	0.244	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-12	TLS-SB-IA5-12 (13.0-14.0) 02241C	ARS1-10-00463-010	GAM-A-020	U-238	0.76515	0.16527	0.17455	0.411	0.2055	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-13	TLS-SB-IA5-12 (23.0-24.0) 02241C	ARS1-10-00463-011	GAM-A-020	U-238	0.67001	0.31436	0.31837	0.468	0.234	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-10	TLS-SB-IA5-12 (3.3-4.3) 02241C	ARS1-10-00463-008	GAM-A-020	U-238	1.0951	0.31618	0.32656	0.614	0.307	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-11	TLS-SB-IA5-12 (3.3-4.3) 022410D	ARS1-10-00463-009	GAM-A-020	U-238	0.61159	0.15444	0.15995	0.344	0.172	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-14	TLS-SB-IA5-12 (58.0-59.0) 02241C	ARS1-10-00463-012	GAM-A-020	U-238	0.73675	0.23533	0.24167	0.46	0.23	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-07	TLS-SB-IA5-2 (53.5-54.5) 02241C	ARS1-10-00463-004	GAM-A-020	U-238	0.85072	0.19092	0.20135	0.354	0.177	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-08	TLS-SB-IA5-2 (59.0-60.0) 022410D	ARS1-10-00463-006	GAM-A-020	U-238	0.85826	0.26949	0.27675	0.491	0.2455	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-09	TLS-SS-IA5-12 (2.2-2.7) 02241C	ARS1-10-00463-007	GAM-A-020	U-238	1.2574	0.52117	0.52967	0.7	0.35	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-15	TLS-SB-IA5-1 (4.0-5.0) 02251C	ARS1-10-00464-002	GAM-A-020	U-238	0.77431	0.25991	0.26605	0.482	0.241	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-16	TLS-SB-IA5-1 (4.0-5.0) 022510D	ARS1-10-00464-003	GAM-A-020	U-238	0.74254	0.20662	0.21368	0.467	0.2335	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-21	TLS-SB-IA5-10 (14.0-15.0) 02251C	ARS1-10-00464-014	GAM-A-020	U-238	0.77677	0.23659	0.24336	0.481	0.2405	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-19	TLS-SB-IA5-10 (3.3-4.3) 02251C	ARS1-10-00464-011	GAM-A-020	U-238	0.4975	0.31966	0.32184	0.443	0.2215	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-20	TLS-SB-IA5-10 (7.1-8.1) 02251C	ARS1-10-00464-012	GAM-A-020	U-238	0.71829	0.24316	0.24899	0.491	0.2455	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-18	TLS-SB-IA5-11 (3.5-5.0) 02251C	ARS1-10-00464-006	GAM-A-020	U-238	0.99838	0.28066	0.28877	0.539	0.2695	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-24	TLS-SB-IA5-16 (12.4-13.4) 02251C	ARS1-10-00464-021	GAM-A-020	U-238	0.74023	0.16334	0.17214	0.364	0.182	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-25	TLS-SB-IA5-16 (19.0-20.0) 02251C	ARS1-10-00464-022	GAM-A-020	U-238	0.89331	0.24427	0.25291	0.442	0.221	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-26	TLS-SB-IA5-16 (49.0-50.0) 02251C	ARS1-10-00464-024	GAM-A-020	U-238	0.45762	0.24013	0.24258	0.363	0.1815	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-22	TLS-SB-IA5-9 (29.0-30.0) 02251C	ARS1-10-00464-018	GAM-A-020	U-238	0.53438	0.17946	0.18369	0.353	0.1765	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-23	TLS-SB-IA5-9 (63.9-64.9) 02251C	ARS1-10-00464-019	GAM-A-020	U-238	0.51426	0.19842	0.20148	0.38	0.19	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04295-17	TLS-SS-IA5-11 (2.0-2.5) 02251C	ARS1-10-00464-005	GAM-A-020	U-238	0.8395	0.2492	0.25671	0.46	0.23	pCi	g	ARS1-B10-04295		1						
ARS1-B10-04348-15	TLS-SB-IA3FL-1 (3.4-4.4)03051C	ARS1-10-00493-017	GAM-A-020	AM-241	0.001229	0.032106	0.032106	0.054	0.027	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-16	TLS-SB-IA3FL-1 (5.0-6.0)03051C	ARS1-10-00493-018	GAM-A-020	AM-241	0.005025	0.026969	0.02697	0.0451	0.02255	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-18	TLS-SB-IA3FL-1 (12.0-13.0)03051C	ARS1-10-00493-021	GAM-A-020	AM-241	0.009787	0.028305	0.028309	0.0472	0.0236	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-17	TLS-SB-IA3FL-1 (6.0-7.0)03051C	ARS1-10-00493-020	GAM-A-020	AM-241	0.027202	0.029575	0.02961	0.0486	0.0243	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-22	TLS-SB-IA3FL-10 (13.0-14.0)03051C	ARS1-10-00493-026	GAM-A-020	AM-241	0.000894	0.032707	0.032708	0.0546	0.0273	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-20	TLS-SB-IA3FL-10 (2.0-3.0)03051C	ARS1-10-00493-023	GAM-A-020	AM-241	0.002111	0.033485	0.033485	0.0562	0.0281	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-21	TLS-SB-IA3FL-10 (3.0-4.0)03051C	ARS1-10-00493-024	GAM-A-020	AM-241	-0.00044	0.033062	0.033062	0.0468	0.0234	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-10	TLS-SB-IA3FL-11 (3.0-4.0)03051C	ARS1-10-00493-008	GAM-A-020	AM-241	0.002458	0.024689	0.024689	0.0412	0.0206	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-11	TLS-SB-IA3FL-11 (7.0-8.0)03051C	ARS1-10-00493-010	GAM-A-020	AM-241	-0.00278	0.052639	0.052639	0.0347	0.01735	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-05	TLS-SB-IA3FL-7 (1.5-2.5)03051C	ARS1-10-00493-002	GAM-A-020	AM-241	0.044235	0.032252	0.03234	0.0448	0.0224	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-06	TLS-SB-IA3FL-7 (3.2-4.2)03051C	ARS1-10-00493-003	GAM-A-020	AM-241	0.008006	0.029682	0.029685	0.0495	0.02475	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-07	TLS-SB-IA3FL-7 (5.5-6.5)03051C	ARS1-10-00493-004	GAM-A-020	AM-241	0.005721	0.03095	0.030952	0.0515	0.02575	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-08	TLS-SB-IA3FL-7 (6.5-7.5)03051C	ARS1-10-00493-005	GAM-A-020	AM-241	0.006365	0.028789	0.028791	0.0481	0.02405	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-24	TLS-SB-IA3FL-8 (3.0-4.0)03051C	ARS1-10-00493-029	GAM-A-020	AM-241	0.005894	0.03539	0.035392	0.0592	0.0296	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-25	TLS-SB-IA3FL-8 (4.0-5.0)03051C	ARS1-10-00493-030	GAM-A-020	AM-241	-0.00849	0.17129	0.17129	0.0475	0.02375	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-26	TLS-SB-IA3FL-8 (6.0-7.0)03051C	ARS1-10-00493-031	GAM-A-020	AM-241	-0.01067	0.034168	0.034172	0.0567	0.02835	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-14	TLS-SB-IA3FL-9 (10.0-11.0)03051C	ARS1-10-00493-015	GAM-A-020	AM-241	0.00673	0.029228	0.02923	0.0488	0.0244	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-12	TLS-SB-IA3FL-9 (2.0-3.0)03051C	ARS1-10-00493-012	GAM-A-020	AM-241	0.030017	0.037912	0.037946	0.0625	0.03125	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-13	TLS-SB-IA3FL-9 (8.3-9.3)03051C	ARS1-10-00493-014	GAM-A-020	AM-241	-0.00035	0.036071	0.036071	0.0602	0.0301	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-19	TLS-SS-IA3FL-10 (1.5-2.0)03051C	ARS1-10-00493-022	GAM-A-020	AM-241	0.017106	0.036784	0.036795	0.0612	0.0306	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-09	TLS-SS-IA3FL-11 (0.5-1.0)03051C	ARS1-10-00493-006	GAM-A-020	AM-241	0.014268	0.026524	0.026535	0.0441	0.02205	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-04	TLS-SS-IA3FL-7 (1.0-1.5)03051C	ARS1-10-00493-001	GAM-A-020	AM-241	0.01182	0.032586	0.032591	0.0544	0.0272	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-23	TLS-SS-IA3FL-8 (1.0-1.5)03051C	ARS1-10-00493-027	GAM-A-020	AM-241	0.004337	0.029047	0.029048	0.0486	0.0243	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-15	TLS-SB-IA3FL-1 (3.4-4.4)03051C	ARS1-10-00493-017	GAM-A-020	RA-226	1.8182	0.4804	0.48855	0.605	0.3025	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-16	TLS-SB-IA3FL-1 (5.0-6.0)03051C	ARS1-10-00493-018	GAM-A-020	RA-226	1.0848	0.34951	0.35351	0.49	0.245	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-18	TLS-SB-IA3FL-1 (12.0-13.0)03051C	ARS1-10-00493-021	GAM-A-020	RA-226	1.2436	0.37412	0.37928	0.478	0.239	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-17	TLS-SB-IA3FL-1 (6.0-7.0)03051C	ARS1-10-00493-020	GAM-A-020	RA-226	1.0759	0.42599	0.42938	0.562	0.281	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-22	TLS-SB-IA3FL-10 (13.0-14.0)03051C	ARS1-10-00493-026	GAM-A-020	RA-226	1.1796	0.52842	0.53172	0.593	0.2965	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-20	TLS-SB-IA3FL-10 (2.0-3.0)03051C	ARS1-10-00493-023	GAM-A-020	RA-226	1.9461	0.52221	0.5308	0.628	0.314	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-21	TLS-SB-IA3FL-10 (3.0-4.0)03051C	ARS1-10-00493-024	GAM-A-020	RA-226	1.8118	0.51308	0.52107	0.587	0.2935	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-10	TLS-SB-IA3FL-11 (3.0-4.0)03051C	ARS1-10-00493-008	GAM-A-020	RA-226	1.1744	0.4242	0.42806	0.457	0.2285	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-11	TLS-SB-IA3FL-11 (7.0-8.0)03051C	ARS1-10-00493-010	GAM-A-020	RA-226	1.4601	0.30694	0.31512	0.384	0.192	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-05	TLS-SB-IA3FL-7 (1.5-2.5)03051C	ARS1-10-00493-002	GAM-A-020	RA-226	2.264	0.4784	0.49102	0.592	0.296	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-06	TLS-SB-IA3FL-7 (3.2-4.2)03051C	ARS1-10-00493-003	GAM-A-020	RA-226	1.5902	0.39651	0.40445	0.49	0.245	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-07	TLS-SB-IA3FL-7 (5.5-6.5)03051C	ARS1-10-00493-004	GAM-A-020	RA-226	1.4467	0.39479	0.40138	0.549	0.2745	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-08	TLS-SB-IA3FL-7 (6.5-7.5)03051C	ARS1-10-00493-005	GAM-A-020	RA-226	1.5002	0.43936	0.44575	0.536	0.268	pCi	g	ARS1-B10-04348		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04348-24	TLS-SB-IA3FL-8 (3.0-4.0)030510	ARS1-10-00493-029	GAM-A-020	RA-226	1.8854	0.45087	0.46018	0.588	0.294	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-25	TLS-SB-IA3FL-8 (4.0-5.0)030510	ARS1-10-00493-030	GAM-A-020	RA-226	1.268	0.43676	0.44113	0.532	0.266	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-26	TLS-SB-IA3FL-8 (6.0-7.0)030510	ARS1-10-00493-031	GAM-A-020	RA-226	1.6097	0.43849	0.44584	0.587	0.2935	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-14	TLS-SB-IA3FL-9 (10.0-11.0)030510	ARS1-10-00493-015	GAM-A-020	RA-226	1.3748	0.44922	0.45448	0.538	0.269	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-12	TLS-SB-IA3FL-9 (2.0-3.0)030510	ARS1-10-00493-012	GAM-A-020	RA-226	1.4012	0.59255	0.59669	0.725	0.3625	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-13	TLS-SB-IA3FL-9 (8.3-9.3)030510	ARS1-10-00493-014	GAM-A-020	RA-226	1.4794	0.54614	0.55114	0.696	0.348	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-19	TLS-SS-IA3FL-10 (1.5-2.0)030510	ARS1-10-00493-022	GAM-A-020	RA-226	1.6977	0.59	0.5958	0.662	0.331	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-09	TLS-SS-IA3FL-11 (0.5-1.0)030510	ARS1-10-00493-006	GAM-A-020	RA-226	2.3945	0.34156	0.36104	0.432	0.216	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-04	TLS-SS-IA3FL-7 (1.0-1.5)030510	ARS1-10-00493-001	GAM-A-020	RA-226	0.94969	0.36921	0.38203	0.463	0.2315	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-23	TLS-SS-IA3FL-8 (1.0-1.5)030510	ARS1-10-00493-027	GAM-A-020	RA-226	2.3273	0.46024	0.47408	0.547	0.2735	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-15	TLS-SB-IA3FL-1 (3.4-4.4)030510	ARS1-10-00493-017	GAM-A-020	RA-228	0.8749	0.091197	0.10568	0.106	0.053	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-16	TLS-SB-IA3FL-1 (5.0-6.0)030510	ARS1-10-00493-018	GAM-A-020	RA-228	0.61295	0.058497	0.069434	0.0671	0.03355	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-18	TLS-SB-IA3FL-1 (12.0-13.0)030510	ARS1-10-00493-021	GAM-A-020	RA-228	0.71197	0.072999	0.085159	0.0822	0.0411	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-17	TLS-SB-IA3FL-1 (6.0-7.0)030510	ARS1-10-00493-020	GAM-A-020	RA-228	0.57266	0.086013	0.092732	0.102	0.051	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-22	TLS-SB-IA3FL-10 (13.0-14.0)030510	ARS1-10-00493-026	GAM-A-020	RA-228	0.78137	0.069637	0.084173	0.0876	0.0438	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-20	TLS-SB-IA3FL-10 (2.0-3.0)030510	ARS1-10-00493-023	GAM-A-020	RA-228	0.97902	0.083794	0.10291	0.108	0.054	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-21	TLS-SB-IA3FL-10 (3.0-4.0)030510	ARS1-10-00493-024	GAM-A-020	RA-228	0.78805	0.074733	0.089114	0.0833	0.04165	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-10	TLS-SB-IA3FL-11 (3.0-4.0)030510	ARS1-10-00493-008	GAM-A-020	RA-228	0.83863	0.070533	0.087144	0.062	0.031	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-11	TLS-SB-IA3FL-11 (7.0-8.0)030510	ARS1-10-00493-010	GAM-A-020	RA-228	0.78485	0.064044	0.079973	0.0645	0.03225	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-05	TLS-SB-IA3FL-7 (1.5-2.5)030510	ARS1-10-00493-002	GAM-A-020	RA-228	0.94715	0.092991	0.10949	0.105	0.0525	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-06	TLS-SB-IA3FL-7 (3.2-4.2)030510	ARS1-10-00493-003	GAM-A-020	RA-228	0.81811	0.0781	0.092946	0.0868	0.0434	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-07	TLS-SB-IA3FL-7 (5.5-6.5)030510	ARS1-10-00493-004	GAM-A-020	RA-228	0.69357	0.066942	0.079011	0.0699	0.03495	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-08	TLS-SB-IA3FL-7 (6.5-7.5)030510	ARS1-10-00493-005	GAM-A-020	RA-228	0.81007	0.091249	0.104	0.091	0.0455	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-24	TLS-SB-IA3FL-8 (3.0-4.0)030510	ARS1-10-00493-029	GAM-A-020	RA-228	1.0561	0.11764	0.13414	0.099	0.0495	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-25	TLS-SB-IA3FL-8 (4.0-5.0)030510	ARS1-10-00493-030	GAM-A-020	RA-228	0.72271	0.085276	0.096006	0.075	0.0375	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-26	TLS-SB-IA3FL-8 (6.0-7.0)030510	ARS1-10-00493-031	GAM-A-020	RA-228	0.76874	0.096497	0.10712	0.0815	0.04075	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-14	TLS-SB-IA3FL-9 (10.0-11.0)030510	ARS1-10-00493-015	GAM-A-020	RA-228	0.71349	0.076821	0.088503	0.0856	0.0428	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-12	TLS-SB-IA3FL-9 (2.0-3.0)030510	ARS1-10-00493-012	GAM-A-020	RA-228	1.1032	0.084637	0.1078	0.121	0.0605	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-13	TLS-SB-IA3FL-9 (8.3-9.3)030510	ARS1-10-00493-014	GAM-A-020	RA-228	0.97506	0.074734	0.095219	0.0908	0.0454	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-19	TLS-SS-IA3FL-10 (1.5-2.0)030510	ARS1-10-00493-022	GAM-A-020	RA-228	0.93276	0.10191	0.11673	0.0946	0.0473	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-09	TLS-SS-IA3FL-11 (0.5-1.0)030510	ARS1-10-00493-006	GAM-A-020	RA-228	0.84659	0.068439	0.08575	0.0921	0.04605	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-04	TLS-SS-IA3FL-7 (1.0-1.5)030510	ARS1-10-00493-001	GAM-A-020	RA-228	0.77506	0.098243	0.11321	0.0898	0.0449	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-23	TLS-SS-IA3FL-8 (1.0-1.5)030510	ARS1-10-00493-027	GAM-A-020	RA-228	0.95866	0.10043	0.11622	0.0892	0.0446	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-18	TLS-SB-IA3FL-1 (12.0-13.0)030510	ARS1-10-00493-021	GAM-A-020	U-234	0.76209	0.24427	0.25059	0.44	0.22	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-15	TLS-SB-IA3FL-1 (3.4-4.4)030510	ARS1-10-00493-017	GAM-A-020	U-234	0.84668	0.26271	0.27032	0.453	0.2265	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-16	TLS-SB-IA3FL-1 (5.0-6.0)030510	ARS1-10-00493-018	GAM-A-020	U-234	0.56445	0.20804	0.21213	0.469	0.2345	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-17	TLS-SB-IA3FL-1 (6.0-7.0)030510	ARS1-10-00493-020	GAM-A-020	U-234	0.63844	0.22943	0.23432	0.472	0.236	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-22	TLS-SB-IA3FL-10 (13.0-14.0)030510	ARS1-10-00493-026	GAM-A-020	U-234	0.93601	0.28864	0.29697	0.53	0.265	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-20	TLS-SB-IA3FL-10 (2.0-3.0)030510	ARS1-10-00493-023	GAM-A-020	U-234	1.1728	0.29063	0.30372	0.522	0.261	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-21	TLS-SB-IA3FL-10 (3.0-4.0)030510	ARS1-10-00493-024	GAM-A-020	U-234	1.0159	0.27548	0.28539	0.484	0.242	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-10	TLS-SB-IA3FL-11 (3.0-4.0)030510	ARS1-10-00493-008	GAM-A-020	U-234	0.6784	0.19084	0.19723	0.386	0.193	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-11	TLS-SB-IA3FL-11 (7.0-8.0)030510	ARS1-10-00493-010	GAM-A-020	U-234	0.73978	0.14835	0.15797	0.327	0.1635	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-05	TLS-SB-IA3FL-7 (1.5-2.5)030510	ARS1-10-00493-002	GAM-A-020	U-234	0.9036	0.32485	0.33188	0.467	0.2335	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-06	TLS-SB-IA3FL-7 (3.2-4.2)030510	ARS1-10-00493-003	GAM-A-020	U-234	0.66704	0.24379	0.24866	0.437	0.2185	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-07	TLS-SB-IA3FL-7 (5.5-6.5)030510	ARS1-10-00493-004	GAM-A-020	U-234	1.0028	0.24739	0.25845	0.485	0.2425	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-08	TLS-SB-IA3FL-7 (6.5-7.5)030510	ARS1-10-00493-005	GAM-A-020	U-234	0.6685	0.25238	0.25711	0.476	0.238	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-24	TLS-SB-IA3FL-8 (3.0-4.0)030510	ARS1-10-00493-029	GAM-A-020	U-234	1.0214	0.27509	0.28561	0.518	0.259	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-25	TLS-SB-IA3FL-8 (4.0-5.0)030510	ARS1-10-00493-030	GAM-A-020	U-234	0.69441	0.2627	0.26759	0.481	0.2405	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-26	TLS-SB-IA3FL-8 (6.0-7.0)030510	ARS1-10-00493-031	GAM-A-020	U-234	1.0506	0.4384	0.44535	0.553	0.2765	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-14	TLS-SB-IA3FL-9 (10.0-11.0)030510	ARS1-10-00493-015	GAM-A-020	U-234	0.59104	0.25323	0.25692	0.457	0.2285	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-12	TLS-SB-IA3FL-9 (2.0-3.0)030510	ARS1-10-00493-012	GAM-A-020	U-234	1.2	0.35234	0.36353	0.634	0.317	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-13	TLS-SB-IA3FL-9 (8.3-9.3)030510	ARS1-10-00493-014	GAM-A-020	U-234	1.0729	0.29273	0.30348	0.559	0.2795	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-19	TLS-SS-IA3FL-10 (1.5-2.0)030510	ARS1-10-00493-022	GAM-A-020	U-234	0.98409	0.29352	0.30227	0.657	0.3285	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-09	TLS-SS-IA3FL-11 (0.5-1.0)030510	ARS1-10-00493-006	GAM-A-020	U-234	0.87395	0.30169	0.30876	0.405	0.2025	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-04	TLS-SS-IA3FL-7 (1.0-1.5)030510	ARS1-10-00493-001	GAM-A-020	U-234	0.060192	0.023513	0.023908	0.022	0.011	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-23	TLS-SS-IA3FL-8 (1.0-1.5)030510	ARS1-10-00493-027	GAM-A-020	U-234	1.0172	0.25673	0.26788	0.383	0.1915	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-18	TLS-SB-IA3FL-1 (12.0-13.0)030510	ARS1-10-00493-021	GAM-A-020	U-235	0.016263	0.092074	0.092081	0.155	0.0775	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-15	TLS-SB-IA3FL-1 (3.4-4.4)030510	ARS1-10-00493-017	GAM-A-020	U-235	0.006573	0.10777	0.10777	0.182	0.091	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-16	TLS-SB-IA3FL-1 (5.0-6.0)030510	ARS1-10-00493-018	GAM-A-020	U-235	0.034551	0.084756	0.084789	0.143	0.0715	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-17	TLS-SB-IA3FL-1 (6.0-7.0)030510	ARS1-10-00493-020	GAM-A-020	U-235	0.029483	0.089649	0.089672	0.152	0.076	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-22	TLS-SB-IA3FL-10 (13.0-14.0)030510	ARS1-10-00493-026	GAM-A-020	U-235	0.055575	0.1039	0.10397	0.175	0.0875	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-20	TLS-SB-IA3FL-10 (2.0-3.0)030510	ARS1-10-00493-023	GAM-A-020	U-235	0.034564	0.10855	0.10857	0.182	0.091	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-21	TLS-SB-IA3FL-10 (3.0-4.0)030510	ARS1-10-00493-024	GAM-A-020	U-235	0.026199	0.10418	0.10419	0.175	0.0875	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-10	TLS-SB-IA3FL-11 (3.0-4.0)030510	ARS1-10-00493-008	GAM-A-020	U-235	0.027759	0.075286	0.07531	0.127	0.0635	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-11	TLS-SB-IA3FL-11 (7.0-8.0)030510	ARS1-10-00493-010	GAM-A-020	U-235	0.038202	0.065008	0.06506	0.109	0.0545	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-05	TLS-SB-IA3FL-7 (1.5-2.5)030510	ARS1-10-00493-002	GAM-A-020	U-235	0.07373	0.10976	0.10987	0.183	0.0915	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-06	TLS-SB-IA3FL-7 (3.2-4.2)030510	ARS1-10-00493-003	GAM-A-020	U-235	0.036938	0.096016	0.096049	0.161	0.0805	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-07	TLS-SB-IA3FL-7 (5.5-6.5)030510	ARS1-10-00493-004	GAM-A-020	U-235	0.05209	0.096658	0.096723	0.163	0.0815	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-08	TLS-SB-IA3FL-7 (6.5-7.5)030510	ARS1-10-00493-005	GAM-A-020	U-235	0.031617	0.1013	0.10133	0.17	0.085	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-24	TLS-SB-IA3FL-8 (3.0-4.0)030510	ARS1-10-00493-029	GAM-A-020	U-235	-0.01003	0.17121	0.17121	0.193	0.0965	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-25	TLS-SB-IA3FL-8 (4.0-5.0)030510	ARS1-10-00493-030	GAM-A-020	U-235	0.031448	0.087052	0.087078	0.147	0.0735	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-26	TLS-SB-IA3FL-8 (6.0-7.0)030510	ARS1-10-00493-031	GAM-A-020	U-235	0.030058	0.099319	0.09934	0.168	0.084	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-14	TLS-SB-IA3FL-9 (10.0-11.0)030510	ARS1-10-00493-015	GAM-A-020	U-235	0.019881	0.092493	0.092503	0.156	0.078	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-12	TLS-SB-IA3FL-9 (2.0-3.0)030510	ARS1-10-00493-012	GAM-A-020	U-235	0.08076	0.11809	0.11822	0.198	0.099	pCi	g	ARS1-B10-04348		1	U	U				

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04348-13	TLS-SB-IA3FL-9 (8.3-9.3)03051C	ARS1-10-00493-014	GAM-A-020	U-235	0.021518	0.11232	0.11233	0.19	0.095	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-19	TLS-SS-IA3FL-10 (1.5-2.0)03051C	ARS1-10-00493-022	GAM-A-020	U-235	0.077674	0.10941	0.10954	0.183	0.0915	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-09	TLS-SS-IA3FL-11 (0.5-1.0)03051C	ARS1-10-00493-006	GAM-A-020	U-235	0.07438	0.083193	0.083347	0.138	0.069	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-04	TLS-SS-IA3FL-7 (1.0-1.5)03051C	ARS1-10-00493-001	GAM-A-020	U-235	0.003944	0.083665	0.083666	0.142	0.071	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-23	TLS-SS-IA3FL-8 (1.0-1.5)03051C	ARS1-10-00493-027	GAM-A-020	U-235	0.064555	0.09248	0.092584	0.154	0.077	pCi	g	ARS1-B10-04348		1	U	U				
ARS1-B10-04348-18	TLS-SB-IA3FL-1 (12.0-13.0)03051C	ARS1-10-00493-021	GAM-A-020	U-238	0.76209	0.24427	0.25059	0.44	0.22	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-15	TLS-SB-IA3FL-1 (3.4-4.4)03051C	ARS1-10-00493-017	GAM-A-020	U-238	0.84668	0.26271	0.27032	0.453	0.2265	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-16	TLS-SB-IA3FL-1 (5.0-6.0)03051C	ARS1-10-00493-018	GAM-A-020	U-238	0.56445	0.20804	0.21213	0.469	0.2345	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-17	TLS-SB-IA3FL-1 (6.0-7.0)03051C	ARS1-10-00493-020	GAM-A-020	U-238	0.63844	0.22943	0.23432	0.472	0.236	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-22	TLS-SB-IA3FL-10 (13.0-14.0)03051C	ARS1-10-00493-026	GAM-A-020	U-238	0.93601	0.28864	0.29697	0.53	0.265	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-20	TLS-SB-IA3FL-10 (2.0-3.0)03051C	ARS1-10-00493-023	GAM-A-020	U-238	1.1728	0.29063	0.30372	0.522	0.261	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-21	TLS-SB-IA3FL-10 (3.0-4.0)03051C	ARS1-10-00493-024	GAM-A-020	U-238	1.0159	0.27548	0.28539	0.484	0.242	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-10	TLS-SB-IA3FL-11 (3.0-4.0)03051C	ARS1-10-00493-008	GAM-A-020	U-238	0.6784	0.19084	0.19723	0.386	0.193	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-11	TLS-SB-IA3FL-11 (7.0-8.0)03051C	ARS1-10-00493-010	GAM-A-020	U-238	0.73978	0.14835	0.15797	0.327	0.1635	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-05	TLS-SB-IA3FL-7 (1.5-2.5)03051C	ARS1-10-00493-002	GAM-A-020	U-238	0.9036	0.32485	0.33188	0.467	0.2335	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-06	TLS-SB-IA3FL-7 (3.2-4.2)03051C	ARS1-10-00493-003	GAM-A-020	U-238	0.66704	0.24379	0.24866	0.437	0.2185	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-07	TLS-SB-IA3FL-7 (5.5-6.5)03051C	ARS1-10-00493-004	GAM-A-020	U-238	1.0028	0.24739	0.25845	0.485	0.2425	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-08	TLS-SB-IA3FL-7 (6.5-7.5)03051C	ARS1-10-00493-005	GAM-A-020	U-238	0.6685	0.25238	0.25711	0.476	0.238	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-24	TLS-SB-IA3FL-8 (3.0-4.0)03051C	ARS1-10-00493-029	GAM-A-020	U-238	1.0214	0.27509	0.28561	0.518	0.259	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-25	TLS-SB-IA3FL-8 (4.0-5.0)03051C	ARS1-10-00493-030	GAM-A-020	U-238	0.69441	0.2627	0.26759	0.481	0.2405	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-26	TLS-SB-IA3FL-8 (6.0-7.0)03051C	ARS1-10-00493-031	GAM-A-020	U-238	1.0506	0.4384	0.44535	0.553	0.2765	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-14	TLS-SB-IA3FL-9 (10.0-11.0)03051C	ARS1-10-00493-015	GAM-A-020	U-238	0.59104	0.25323	0.25692	0.457	0.2285	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-12	TLS-SB-IA3FL-9 (2.0-3.0)03051C	ARS1-10-00493-012	GAM-A-020	U-238	1.2	0.35234	0.36353	0.634	0.317	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-13	TLS-SB-IA3FL-9 (8.3-9.3)03051C	ARS1-10-00493-014	GAM-A-020	U-238	1.0729	0.29273	0.30348	0.559	0.2795	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-19	TLS-SS-IA3FL-10 (1.5-2.0)03051C	ARS1-10-00493-022	GAM-A-020	U-238	0.98409	0.29352	0.30227	0.657	0.3285	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-09	TLS-SS-IA3FL-11 (0.5-1.0)03051C	ARS1-10-00493-006	GAM-A-020	U-238	0.87395	0.30169	0.30876	0.405	0.2025	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-04	TLS-SS-IA3FL-7 (1.0-1.5)03051C	ARS1-10-00493-001	GAM-A-020	U-238	0.66908	0.21214	0.21698	0.463	0.2315	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04348-23	TLS-SS-IA3FL-8 (1.0-1.5)03051C	ARS1-10-00493-027	GAM-A-020	U-238	1.0172	0.25673	0.26788	0.383	0.1915	pCi	g	ARS1-B10-04348		1						
ARS1-B10-04414-20	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	GAM-A-020	AM-241	0.008137	0.032366	0.032369	0.0541	0.02705	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-21	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	GAM-A-020	AM-241	-0.01863	0.03988	0.039892	0.0384	0.0192	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-22	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	GAM-A-020	AM-241	0.034806	0.031432	0.031487	0.0515	0.02575	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-23	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	GAM-A-020	AM-241	0.000225	0.028279	0.028279	0.0472	0.0236	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-15	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	GAM-A-020	AM-241	0.000137	0.022073	0.022073	0.0367	0.01835	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-14	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	GAM-A-020	AM-241	0.003382	0.022025	0.022025	0.0367	0.01835	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-07	TLS-SB-IA3-BO1 (11.5-12.5)03111C	ARS1-10-00576-005	GAM-A-020	AM-241	0	0.028587	0.028587	0.0478	0.0239	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-05	TLS-SB-IA3-BO1 (5.0-6.0)03111C	ARS1-10-00576-003	GAM-A-020	AM-241	0.001157	0.036298	0.036298	0.0609	0.03045	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-06	TLS-SB-IA3-BO1 (9.0-10.0)03111C	ARS1-10-00576-004	GAM-A-020	AM-241	0.002048	0.02512	0.02512	0.0422	0.0211	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-08	TLS-SB-IA3-BO2 (3.0-4.0)03111C	ARS1-10-00576-007	GAM-A-020	AM-241	0.006723	0.034199	0.034201	0.0574	0.0287	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-09	TLS-SB-IA3-BO2 (5.0-6.0)03111C	ARS1-10-00576-008	GAM-A-020	AM-241	0.012287	0.032245	0.032252	0.0537	0.02685	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-10	TLS-SB-IA3-BO2 (7.0-8.0)03111C	ARS1-10-00576-009	GAM-A-020	AM-241	-0.00705	0.14032	0.14032	0.0476	0.0238	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-11	TLS-SB-IA3-BO2 (9.0-10.0)03111C	ARS1-10-00576-010	GAM-A-020	AM-241	0.022228	0.029219	0.029243	0.0482	0.0241	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-12	TLS-SB-IA3-BO5 (4.0-5.0)03111C	ARS1-10-00576-013	GAM-A-020	AM-241	-0.01052	0.068735	0.068737	0.0455	0.02275	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-18	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	GAM-A-020	AM-241	-0.00146	0.041416	0.041416	0.0491	0.02455	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-17	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	GAM-A-020	AM-241	-0.00243	0.052132	0.052132	0.0468	0.0234	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-13	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	GAM-A-020	AM-241	0.015797	0.027548	0.027561	0.0459	0.02295	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-19	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	GAM-A-020	AM-241	0.045417	0.027669	0.02777	0.0362	0.0181	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-04	TLS-SS-IA3-BO1 (1.8-2.3)03111C	ARS1-10-00576-001	GAM-A-020	AM-241	0.021271	0.017864	0.017899	0.0295	0.01475	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-16	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	GAM-A-020	AM-241	-0.00486	0.29188	0.29188	0.0355	0.01775	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-24	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	GAM-A-020	AM-241	0.024301	0.10553	0.10554	0.174	0.087	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-25	TLS-SS-IA2-20 (0.0-05)03251C	ARS1-10-00660-016	GAM-A-020	AM-241	0.007103	0.037507	0.037509	0.0627	0.03135	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-26	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	GAM-A-020	AM-241	0.024938	0.042394	0.042414	0.07	0.035	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-20	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	GAM-A-020	RA-226	0.87934	0.3871	0.39762	0.472	0.236	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-21	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	GAM-A-020	RA-226	1.648	0.35899	0.36838	0.417	0.2085	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-22	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	GAM-A-020	RA-226	1.4252	0.44029	0.44603	0.564	0.282	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-23	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	GAM-A-020	RA-226	1.5125	0.37294	0.38055	0.524	0.262	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-15	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	GAM-A-020	RA-226	1.6303	0.28628	0.29769	0.41	0.205	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-14	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	GAM-A-020	RA-226	0.85641	0.25008	0.26527	0.31	0.155	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-07	TLS-SB-IA3-BO1 (11.5-12.5)03111C	ARS1-10-00576-005	GAM-A-020	RA-226	1.0972	0.35221	0.35647	0.596	0.298	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-05	TLS-SB-IA3-BO1 (5.0-6.0)03111C	ARS1-10-00576-003	GAM-A-020	RA-226	2.158	0.59028	0.59962	0.685	0.3425	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-06	TLS-SB-IA3-BO1 (9.0-10.0)03111C	ARS1-10-00576-004	GAM-A-020	RA-226	0.99038	0.30854	0.31231	0.52	0.26	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-08	TLS-SB-IA3-BO2 (3.0-4.0)03111C	ARS1-10-00576-007	GAM-A-020	RA-226	2.1672	0.59833	0.60762	0.696	0.348	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-09	TLS-SB-IA3-BO2 (5.0-6.0)03111C	ARS1-10-00576-008	GAM-A-020	RA-226	1.64	0.42424	0.43174	0.546	0.273	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-10	TLS-SB-IA3-BO2 (7.0-8.0)03111C	ARS1-10-00576-009	GAM-A-020	RA-226	1.4028	0.41297	0.41892	0.494	0.247	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-11	TLS-SB-IA3-BO2 (9.0-10.0)03111C	ARS1-10-00576-010	GAM-A-020	RA-226	1.1004	0.46603	0.46928	0.577	0.2885	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-12	TLS-SB-IA3-BO5 (4.0-5.0)03111C	ARS1-10-00576-013	GAM-A-020	RA-226	1.0451	0.40805	0.41141	0.503	0.2515	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-18	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	GAM-A-020	RA-226	1.4815	0.41622	0.42247	0.517	0.2585	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-17	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	GAM-A-020	RA-226	1.386	0.38361	0.38954	0.486	0.243	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-13	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	GAM-A-020	RA-226	1.7316	0.39295	0.40195	0.491	0.2455	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-19	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	GAM-A-020	RA-226	1.4908	0.32067	0.32884	0.464	0.232	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-04	TLS-SS-IA3-BO1 (1.8-2.3)03111C	ARS1-10-00576-001	GAM-A-020	RA-226	1.2994	0.35051	0.35862	0.516	0.258	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-16	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	GAM-A-020	RA-226	1.3228	0.35462	0.36077	0.427	0.2135	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-24	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	GAM-A-020	RA-226	143.39	1.6479	7.8222	1.32	0.66	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-25	TLS-SS-IA2-20 (0.0-05)03251C	ARS1-10-00660-016	GAM-A-020	RA-226	2.3053	0.71151	0.72084	0.74	0.37	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-26	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	GAM-A-020	RA-226	15.901	0.65044	1.0281	0.704	0.352	pCi	g	ARS1-B10-04414		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04414-20	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	GAM-A-020	RA-228	0.87261	0.075114	0.098252	0.0803	0.04015	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-21	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	GAM-A-020	RA-228	1.0012	0.08239	0.10291	0.0723	0.03615	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-22	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	GAM-A-020	RA-228	0.70223	0.076159	0.087212	0.101	0.0505	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-23	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	GAM-A-020	RA-228	0.65963	0.065741	0.076911	0.0872	0.0436	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-15	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	GAM-A-020	RA-228	0.6936	0.060889	0.073953	0.066	0.033	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-14	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	GAM-A-020	RA-228	0.78067	0.064964	0.086203	0.0617	0.03085	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-07	TLS-SB-IA3-B01 (11.5-12.5)03111C	ARS1-10-00576-005	GAM-A-020	RA-228	0.67944	0.10041	0.1085	0.0831	0.04155	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-05	TLS-SB-IA3-B01 (5.0-6.0)03111C	ARS1-10-00576-003	GAM-A-020	RA-228	1.0388	0.10071	0.119	0.0991	0.04955	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-06	TLS-SB-IA3-B01 (9.0-10.0)03111C	ARS1-10-00576-004	GAM-A-020	RA-228	0.63502	0.066181	0.076692	0.0758	0.0379	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-08	TLS-SB-IA3-B02 (3.0-4.0)03111C	ARS1-10-00576-007	GAM-A-020	RA-228	0.87648	0.090344	0.10499	0.103	0.0515	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-09	TLS-SB-IA3-B02 (5.0-6.0)03111C	ARS1-10-00576-008	GAM-A-020	RA-228	0.91386	0.11127	0.12446	0.0902	0.0451	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-10	TLS-SB-IA3-B02 (7.0-8.0)03111C	ARS1-10-00576-009	GAM-A-020	RA-228	0.68522	0.093672	0.10274	0.0787	0.03935	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-11	TLS-SB-IA3-B02 (9.0-10.0)03111C	ARS1-10-00576-010	GAM-A-020	RA-228	0.63061	0.095629	0.10296	0.0818	0.0409	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-12	TLS-SB-IA3-B05 (4.0-5.0)03111C	ARS1-10-00576-013	GAM-A-020	RA-228	0.72955	0.088664	0.099401	0.0751	0.03755	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-18	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	GAM-A-020	RA-228	0.75633	0.080806	0.093058	0.0934	0.0467	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-17	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	GAM-A-020	RA-228	0.60011	0.065748	0.07526	0.0992	0.0496	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-13	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	GAM-A-020	RA-228	0.73851	0.093088	0.10342	0.0869	0.04345	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-19	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	GAM-A-020	RA-228	0.97127	0.090755	0.1084	0.062	0.031	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-04	TLS-SS-IA3-B01 (1.8-2.3)03111C	ARS1-10-00576-001	GAM-A-020	RA-228	0.6857	0.059355	0.073778	0.0981	0.04905	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-16	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	GAM-A-020	RA-228	0.72446	0.067443	0.080869	0.0675	0.03375	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-24	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	GAM-A-020	RA-228	0.83641	0.1503	0.15873	0.242	0.121	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-25	TLS-SS-IA2-20 (0.0-05)03251C	ARS1-10-00660-016	GAM-A-020	RA-228	1.0427	0.11955	0.13571	0.116	0.058	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-26	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	GAM-A-020	RA-228	1.6809	0.10245	0.14437	0.0968	0.0484	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-20	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	GAM-A-020	U-234	0.88387	0.26178	0.2686	0.502	0.251	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-21	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	GAM-A-020	U-234	0.36662	0.11064	0.11386	0.339	0.1695	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-22	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	GAM-A-020	U-234	0.88679	0.26386	0.27202	0.519	0.2595	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-23	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	GAM-A-020	U-234	0.56431	0.21537	0.21944	0.489	0.2445	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-15	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	GAM-A-020	U-234	0.71897	0.17079	0.17901	0.377	0.1885	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-14	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	GAM-A-020	U-234	0.59927	0.17704	0.18168	0.332	0.166	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-07	TLS-SB-IA3-B01 (11.5-12.5)03111C	ARS1-10-00576-005	GAM-A-020	U-234	0.59337	0.2606	0.26433	0.499	0.2495	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-05	TLS-SB-IA3-B01 (5.0-6.0)03111C	ARS1-10-00576-003	GAM-A-020	U-234	1.1892	0.27697	0.29104	0.519	0.2595	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-06	TLS-SB-IA3-B01 (9.0-10.0)03111C	ARS1-10-00576-004	GAM-A-020	U-234	0.046928	0.08569	0.08575	0.144	0.072	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-08	TLS-SB-IA3-B02 (3.0-4.0)03111C	ARS1-10-00576-007	GAM-A-020	U-234	0.78867	0.33128	0.33655	0.484	0.242	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-09	TLS-SB-IA3-B02 (5.0-6.0)03111C	ARS1-10-00576-008	GAM-A-020	U-234	0.83887	0.24207	0.24978	0.531	0.2655	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-10	TLS-SB-IA3-B02 (7.0-8.0)03111C	ARS1-10-00576-009	GAM-A-020	U-234	0.71772	0.2159	0.22223	0.413	0.2065	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-11	TLS-SB-IA3-B02 (9.0-10.0)03111C	ARS1-10-00576-010	GAM-A-020	U-234	0.85482	0.27509	0.28239	0.514	0.257	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-12	TLS-SB-IA3-B05 (4.0-5.0)03111C	ARS1-10-00576-013	GAM-A-020	U-234	0.52163	0.32125	0.32352	0.43	0.215	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-18	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	GAM-A-020	U-234	0.67284	0.3045	0.30867	0.42	0.21	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-17	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	GAM-A-020	U-234	0.70235	0.21762	0.22393	0.418	0.209	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-13	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	GAM-A-020	U-234	0.88364	0.24045	0.24946	0.449	0.2245	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-19	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	GAM-A-020	U-234	0.90221	0.22518	0.23471	0.401	0.2005	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-04	TLS-SS-IA3-B01 (1.8-2.3)03111C	ARS1-10-00576-001	GAM-A-020	U-234	0.66268	0.17732	0.18386	0.38	0.19	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-16	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	GAM-A-020	U-234	0.83895	0.19013	0.19985	0.359	0.1795	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-24	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	GAM-A-020	U-234	140.12	1.7091	10.423	1.47	0.735	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-25	TLS-SS-IA2-20 (0.0-05)03251C	ARS1-10-00660-016	GAM-A-020	U-234	1.2554	0.31121	0.32456	0.586	0.293	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-26	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	GAM-A-020	U-234	13.054	0.62835	1.1589	0.688	0.344	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-20	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	GAM-A-020	U-235	0.006616	0.08116	0.081163	0.137	0.0685	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-21	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	GAM-A-020	U-235	0.036993	0.075596	0.075638	0.126	0.063	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-22	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	GAM-A-020	U-235	0.029898	0.098664	0.098685	0.167	0.0835	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-23	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	GAM-A-020	U-235	0.027306	0.094673	0.094691	0.16	0.08	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-15	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	GAM-A-020	U-235	0.040393	0.070747	0.070801	0.119	0.0595	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-14	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	GAM-A-020	U-235	0.043963	0.057095	0.057281	0.0769	0.03845	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-07	TLS-SB-IA3-B01 (11.5-12.5)03111C	ARS1-10-00576-005	GAM-A-020	U-235	0.03281	0.093183	0.09321	0.158	0.079	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-05	TLS-SB-IA3-B01 (5.0-6.0)03111C	ARS1-10-00576-003	GAM-A-020	U-235	0.10334	0.11829	0.1185	0.196	0.098	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-06	TLS-SB-IA3-B01 (9.0-10.0)03111C	ARS1-10-00576-004	GAM-A-020	U-235	0.046928	0.08569	0.08575	0.144	0.072	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-08	TLS-SB-IA3-B02 (3.0-4.0)03111C	ARS1-10-00576-007	GAM-A-020	U-235	0.024543	0.11812	0.11813	0.199	0.0995	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-09	TLS-SB-IA3-B02 (5.0-6.0)03111C	ARS1-10-00576-008	GAM-A-020	U-235	0.034936	0.097712	0.097741	0.165	0.0825	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-10	TLS-SB-IA3-B02 (7.0-8.0)03111C	ARS1-10-00576-009	GAM-A-020	U-235	0.008547	0.092354	0.092356	0.156	0.078	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-11	TLS-SB-IA3-B02 (9.0-10.0)03111C	ARS1-10-00576-010	GAM-A-020	U-235	0.034108	0.093962	0.093991	0.159	0.0795	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-12	TLS-SB-IA3-B05 (4.0-5.0)03111C	ARS1-10-00576-013	GAM-A-020	U-235	-0.01122	0.16197	0.16197	0.157	0.0785	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-18	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	GAM-A-020	U-235	0.05002	0.094844	0.094905	0.159	0.0795	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-17	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	GAM-A-020	U-235	-0.01059	0.15233	0.15233	0.154	0.077	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-13	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	GAM-A-020	U-235	0.063288	0.093331	0.09343	0.156	0.078	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-19	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	GAM-A-020	U-235	0.034506	0.076245	0.076281	0.128	0.064	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-04	TLS-SS-IA3-B01 (1.8-2.3)03111C	ARS1-10-00576-001	GAM-A-020	U-235	0.06375	0.083853	0.083988	0.112	0.056	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-16	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	GAM-A-020	U-235	0.020836	0.074532	0.074546	0.125	0.0625	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-24	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	GAM-A-020	U-235	8.4737	0.32284	0.70169	0.333	0.1665	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-25	TLS-SS-IA2-20 (0.0-05)03251C	ARS1-10-00660-016	GAM-A-020	U-235	0.055736	0.1281	0.12816	0.215	0.1075	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-26	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	GAM-A-020	U-235	0.8756	0.14784	0.15948	0.18	0.09	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-20	TLS-SB-IA3-B03 (2.0-3.0)03111C	ARS1-10-00576-037	GAM-A-020	U-238	0.88387	0.26178	0.2686	0.502	0.251	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-21	TLS-SB-IA3-B03 (5.0-6.0)03111C	ARS1-10-00576-038	GAM-A-020	U-238	0.36662	0.11064	0.11386	0.339	0.1695	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-22	TLS-SB-IA3-B03 (6.0-7.0)03111C	ARS1-10-00576-039	GAM-A-020	U-238	0.88679	0.26386	0.27202	0.519	0.2595	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-23	TLS-SB-IA3-B03 (8.0-9.0)03111C	ARS1-10-00576-040	GAM-A-020	U-238	0.56431	0.21537	0.21944	0.489	0.2445	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-15	TLS-SB-IA3-B04 (10.0-11.0)03111C	ARS1-10-00576-025	GAM-A-020	U-238	0.71897	0.17079	0.17901	0.377	0.1885	pCi	g	ARS1-B10-04414		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04414-14	TLS-SB-IA3-B04 (7.0-8.0)03111C	ARS1-10-00576-024	GAM-A-020	U-238	0.59927	0.17704	0.18168	0.332	0.166	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-07	TLS-SB-IA3-BO1 (11.5-12.5)03111C	ARS1-10-00576-005	GAM-A-020	U-238	0.59337	0.2606	0.26433	0.499	0.2495	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-05	TLS-SB-IA3-BO1 (5.0-6.0)03111C	ARS1-10-00576-003	GAM-A-020	U-238	1.1892	0.27697	0.29104	0.519	0.2595	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-06	TLS-SB-IA3-BO1 (9.0-10.0)03111C	ARS1-10-00576-004	GAM-A-020	U-238	0.046928	0.08569	0.08575	0.144	0.072	pCi	g	ARS1-B10-04414		1	U	U				
ARS1-B10-04414-08	TLS-SB-IA3-BO2 (3.0-4.0)03111C	ARS1-10-00576-007	GAM-A-020	U-238	0.78867	0.33128	0.33655	0.484	0.242	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-09	TLS-SB-IA3-BO2 (5.0-6.0)03111C	ARS1-10-00576-008	GAM-A-020	U-238	0.83887	0.24207	0.24978	0.531	0.2655	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-10	TLS-SB-IA3-BO2 (7.0-8.0)03111C	ARS1-10-00576-009	GAM-A-020	U-238	0.71772	0.2159	0.22223	0.413	0.2065	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-11	TLS-SB-IA3-BO2 (9.0-10.0)03111C	ARS1-10-00576-010	GAM-A-020	U-238	0.85482	0.27509	0.28239	0.514	0.257	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-12	TLS-SB-IA3-BO5 (4.0-5.0)03111C	ARS1-10-00576-013	GAM-A-020	U-238	0.52163	0.32125	0.32352	0.43	0.215	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-18	TLS-SB-IA3-D11 (10.0-11.0)03111C	ARS1-10-00576-035	GAM-A-020	U-238	0.67284	0.3045	0.30867	0.42	0.21	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-17	TLS-SB-IA3-D11 (9.0-10.0)03111C	ARS1-10-00576-034	GAM-A-020	U-238	0.70235	0.21762	0.22393	0.418	0.209	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-13	TLS-SB-IA3-D12 (7.0-8.0)03111C	ARS1-10-00576-020	GAM-A-020	U-238	0.88364	0.24045	0.24946	0.449	0.2245	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-19	TLS-SS-IA3-B03 (1.2-1.7)03111C	ARS1-10-00576-036	GAM-A-020	U-238	0.90221	0.22518	0.23471	0.401	0.2005	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-04	TLS-SS-IA3-BO1 (1.8-2.3)03111C	ARS1-10-00576-001	GAM-A-020	U-238	0.66268	0.17732	0.18386	0.38	0.19	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-16	TLS-SS-IA3-D11 (0.2-0.7)03111C	ARS1-10-00576-031	GAM-A-020	U-238	0.83895	0.19013	0.19985	0.359	0.1795	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-24	TLS-SB-IA1-3 (15.5-16.0/17.6-18.1)03151	ARS1-10-00593-001	GAM-A-020	U-238	140.12	1.7091	10.423	1.47	0.735	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-25	TLS-SS-IA2-20 (0.0-05)03251C	ARS1-10-00660-016	GAM-A-020	U-238	1.2554	0.31121	0.32456	0.586	0.293	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04414-26	TLS-SB-IA1-B5 (15.0-16.0)032610D	ARS1-10-00674-009	GAM-A-020	U-238	13.054	0.62835	1.1589	0.688	0.344	pCi	g	ARS1-B10-04414		1						
ARS1-B10-04468-04	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	GAM-A-020	AM-241	-0.02488	0.073979	0.07399	0.064	0.032	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-05	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	GAM-A-020	AM-241	0.03055	0.02819	0.028238	0.0418	0.0209	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	GAM-A-020	AM-241	0.009924	0.026233	0.026237	0.0436	0.0218	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	GAM-A-020	AM-241	-0.00579	0.13894	0.13894	0.0517	0.02585	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-08	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	GAM-A-020	AM-241	-0.00523	0.072398	0.072398	0.0649	0.03245	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-09	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	GAM-A-020	AM-241	0.017966	0.019508	0.019527	0.0282	0.0141	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-10	TLS-SB-IA3-D08 (3.0-4.0)03121C	ARS1-10-00578-024	GAM-A-020	AM-241	0.006205	0.033982	0.033984	0.0569	0.02845	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-11	TLS-SB-IA3-D08 (6.0-7.0)03121C	ARS1-10-00578-025	GAM-A-020	AM-241	-0.00063	0.027458	0.027458	0.0387	0.01935	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-12	TLS-SB-IA3-D08 (10.0-11.0)03121C	ARS1-10-00578-026	GAM-A-020	AM-241	0.006217	0.029937	0.029938	0.0501	0.02505	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-23	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	GAM-A-020	AM-241	0.031341	0.030157	0.030195	0.0388	0.0194	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-25	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	GAM-A-020	AM-241	0.003092	0.025155	0.025156	0.0419	0.02095	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-26	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	GAM-A-020	AM-241	0.001255	0.04216	0.04216	0.0709	0.03545	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-24	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	GAM-A-020	AM-241	0.00414	0.029762	0.029763	0.0497	0.02485	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-19	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	GAM-A-020	AM-241	0.009605	0.040193	0.040196	0.0671	0.03355	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-22	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	GAM-A-020	AM-241	-0.01938	0.056701	0.05671	0.0405	0.02025	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-20	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	GAM-A-020	AM-241	-0.01078	0.089114	0.089116	0.0453	0.02265	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-21	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	GAM-A-020	AM-241	0.00473	0.041918	0.041919	0.0698	0.0349	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-17	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	GAM-A-020	AM-241	0.014116	0.028232	0.028242	0.0467	0.02335	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-16	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	GAM-A-020	AM-241	-0.0019	0.038984	0.038984	0.0466	0.0233	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-15	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	GAM-A-020	AM-241	0.003808	0.034157	0.034157	0.0574	0.0287	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-14	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	GAM-A-020	AM-241	0.009203	0.033234	0.033237	0.0555	0.02775	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-18	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	GAM-A-020	AM-241	0.010211	0.040138	0.040141	0.0672	0.0336	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-13	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	GAM-A-020	AM-241	0.006818	0.02845	0.028453	0.0474	0.0237	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-04	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	GAM-A-020	RA-226	1.8443	0.45206	0.46095	0.641	0.3205	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-05	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	GAM-A-020	RA-226	2.1257	0.46397	0.47545	0.577	0.2885	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	GAM-A-020	RA-226	1.103	0.32739	0.34665	0.391	0.1955	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	GAM-A-020	RA-226	1.2551	0.39512	0.39985	0.529	0.2645	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-08	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	GAM-A-020	RA-226	1.8212	0.62498	0.63248	0.882	0.441	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-09	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	GAM-A-020	RA-226	0.74292	0.23685	0.24897	0.317	0.1585	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-10	TLS-SB-IA3-D08 (3.0-4.0)03121C	ARS1-10-00578-024	GAM-A-020	RA-226	1.952	0.46572	0.47538	0.584	0.292	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-11	TLS-SB-IA3-D08 (6.0-7.0)03121C	ARS1-10-00578-025	GAM-A-020	RA-226	1.4128	0.33263	0.33972	0.423	0.2115	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-12	TLS-SB-IA3-D08 (10.0-11.0)03121C	ARS1-10-00578-026	GAM-A-020	RA-226	1.9524	0.488	0.49772	0.568	0.284	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-23	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	GAM-A-020	RA-226	1.1419	0.29733	0.31988	0.398	0.199	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-25	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	GAM-A-020	RA-226	1.8051	0.39749	0.40767	0.463	0.2315	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-26	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	GAM-A-020	RA-226	2.3922	0.60926	0.62037	0.752	0.376	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-24	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	GAM-A-020	RA-226	1.1753	0.3611	0.38097	0.43	0.215	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-19	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	GAM-A-020	RA-226	1.7029	0.45304	0.46062	0.751	0.3755	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-22	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	GAM-A-020	RA-226	1.61	0.30149	0.31158	0.43	0.215	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-20	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	GAM-A-020	RA-226	1.9063	0.50454	0.51351	0.601	0.3005	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-21	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	GAM-A-020	RA-226	1.667	0.53097	0.53749	0.746	0.373	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-17	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	GAM-A-020	RA-226	1.611	0.48174	0.48845	0.525	0.2625	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-16	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	GAM-A-020	RA-226	2.0698	0.45326	0.4644	0.528	0.264	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-15	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	GAM-A-020	RA-226	1.7776	0.50337	0.51081	0.626	0.313	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-14	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	GAM-A-020	RA-226	1.3536	0.38141	0.3871	0.639	0.3195	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-18	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	GAM-A-020	RA-226	1.4588	0.56304	0.58286	0.609	0.3045	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-13	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	GAM-A-020	RA-226	1.6339	0.41151	0.41918	0.523	0.2615	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-04	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	GAM-A-020	RA-228	1.0801	0.10764	0.12622	0.102	0.051	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-05	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	GAM-A-020	RA-228	0.83463	0.079876	0.094733	0.103	0.0515	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	GAM-A-020	RA-228	0.96713	0.093282	0.11674	0.0842	0.0421	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	GAM-A-020	RA-228	0.75964	0.10489	0.11467	0.0932	0.0466	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-08	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	GAM-A-020	RA-228	0.94173	0.17054	0.17996	0.14	0.07	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-09	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	GAM-A-020	RA-228	0.72683	0.071138	0.088565	0.0649	0.03245	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-10	TLS-SB-IA3-D08 (3.0-4.0)03121C	ARS1-10-00578-024	GAM-A-020	RA-228	1.0872	0.13463	0.15009	0.105	0.0525	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-11	TLS-SB-IA3-D08 (6.0-7.0)03121C	ARS1-10-00578-025	GAM-A-020	RA-228	0.79154	0.062711	0.079158	0.0619	0.03095	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-12	TLS-SB-IA3-D08 (10.0-11.0)03121C	ARS1-10-00578-026	GAM-A-020	RA-228	0.71439	0.082106	0.093154	0.0822	0.0411	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-23	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	GAM-A-020	RA-228	0.85183	0.090553	0.10965	0.0903	0.04515	pCi	g	ARS1-B10-04468		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04468-25	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	GAM-A-020	RA-228	0.83179	0.06585	0.083434	0.0751	0.03755	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-26	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	GAM-A-020	RA-228	1.1221	0.1103	0.12982	0.117	0.0585	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-24	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	GAM-A-020	RA-228	0.92617	0.10577	0.12533	0.0965	0.04825	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-19	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	GAM-A-020	RA-228	1.207	0.12532	0.14536	0.117	0.0585	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-22	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	GAM-A-020	RA-228	0.86436	0.069638	0.08736	0.0699	0.03495	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-20	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	GAM-A-020	RA-228	0.8108	0.1187	0.12878	0.102	0.051	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-21	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	GAM-A-020	RA-228	0.9682	0.11599	0.12994	0.119	0.0595	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-17	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	GAM-A-020	RA-228	0.82787	0.060489	0.078541	0.0706	0.0353	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-16	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	GAM-A-020	RA-228	0.98574	0.076093	0.096999	0.0846	0.0423	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-15	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	GAM-A-020	RA-228	0.81797	0.078197	0.092771	0.0986	0.0493	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-14	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	GAM-A-020	RA-228	0.75189	0.085884	0.097373	0.104	0.052	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-18	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	GAM-A-020	RA-228	0.81571	0.093807	0.11093	0.139	0.0695	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-13	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	GAM-A-020	RA-228	0.86728	0.090264	0.10464	0.103	0.0515	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-04	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	GAM-A-020	U-234	0.97748	0.28046	0.28949	0.615	0.3075	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-05	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	GAM-A-020	U-234	0.85358	0.2491	0.25724	0.45	0.225	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	GAM-A-020	U-234	0.72755	0.18086	0.18752	0.418	0.209	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	GAM-A-020	U-234	0.81123	0.258	0.26512	0.491	0.2455	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-08	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	GAM-A-020	U-234	2.2194	0.52257	0.54736	0.732	0.366	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-09	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	GAM-A-020	U-234	0.77291	0.19938	0.20621	0.374	0.187	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-10	TLS-SB-IA3-D08 (3.0-4.0)03121C	ARS1-10-00578-024	GAM-A-020	U-234	1.0231	0.2588	0.27	0.48	0.24	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-11	TLS-SB-IA3-D08 (6.0-7.0)03121C	ARS1-10-00578-025	GAM-A-020	U-234	0.63317	0.20859	0.2137	0.371	0.1855	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-12	TLS-SB-IA3-D08 (10.0-11.0)03121C	ARS1-10-00578-026	GAM-A-020	U-234	0.80857	0.25573	0.26252	0.494	0.247	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-23	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	GAM-A-020	U-234	0.061846	0.016564	0.01715	0.0152	0.0076	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-25	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	GAM-A-020	U-234	0.047742	0.018908	0.019141	0.0201	0.01005	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-26	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	GAM-A-020	U-234	0.082198	0.030513	0.030928	0.0303	0.01515	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-24	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	GAM-A-020	U-234	0.030206	0.014757	0.014915	0.0235	0.01175	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-19	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	GAM-A-020	U-234	0.052324	0.025175	0.025379	0.0283	0.01415	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-22	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	GAM-A-020	U-234	0.041346	0.014639	0.014857	0.0168	0.0084	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-20	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	GAM-A-020	U-234	0.042447	0.021518	0.02168	0.0232	0.0116	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-21	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	GAM-A-020	U-234	0.064378	0.029819	0.030077	0.0289	0.01445	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-17	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	GAM-A-020	U-234	0.030587	0.013934	0.014059	0.0222	0.0111	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-16	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	GAM-A-020	U-234	0.031866	0.015339	0.015463	0.0244	0.0122	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-15	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	GAM-A-020	U-234	0.053075	0.021777	0.022019	0.0232	0.0116	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-14	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	GAM-A-020	U-234	0.056564	0.023524	0.023779	0.023	0.0115	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-18	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	GAM-A-020	U-234	0.072103	0.030536	0.030972	0.0257	0.01285	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-13	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	GAM-A-020	U-234	0.057087	0.020986	0.021276	0.0184	0.0092	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-04	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	GAM-A-020	U-235	0.086399	0.11391	0.11406	0.19	0.095	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-05	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	GAM-A-020	U-235	0.024873	0.11169	0.1117	0.188	0.094	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	GAM-A-020	U-235	0.044614	0.064528	0.064698	0.0895	0.04475	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	GAM-A-020	U-235	0.030278	0.10047	0.10049	0.169	0.0845	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-08	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	GAM-A-020	U-235	0.11292	0.12985	0.13012	0.219	0.1095	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-09	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	GAM-A-020	U-235	0.053596	0.055866	0.056149	0.0774	0.0387	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-10	TLS-SB-IA3-D08 (3.0-4.0)03121C	ARS1-10-00578-024	GAM-A-020	U-235	0.08394	0.11057	0.11072	0.184	0.092	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-11	TLS-SB-IA3-D08 (6.0-7.0)03121C	ARS1-10-00578-025	GAM-A-020	U-235	0.023485	0.07113	0.071148	0.12	0.06	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-12	TLS-SB-IA3-D08 (10.0-11.0)03121C	ARS1-10-00578-026	GAM-A-020	U-235	0.020587	0.10071	0.10072	0.17	0.085	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-23	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	GAM-A-020	U-235	0.02062	0.068446	0.06848	0.115	0.0575	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-25	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	GAM-A-020	U-235	0.050841	0.081232	0.081307	0.135	0.0675	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-26	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	GAM-A-020	U-235	0.13493	0.13558	0.13589	0.225	0.1125	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-24	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	GAM-A-020	U-235	0.077711	0.09596	0.096307	0.117	0.0585	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-19	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	GAM-A-020	U-235	0.051626	0.12175	0.1218	0.205	0.1025	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-22	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	GAM-A-020	U-235	0.068361	0.07487	0.075014	0.125	0.0625	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-20	TLS-SB-IA3-D05 (4.0-5.0)03151C	ARS1-10-00580-019	GAM-A-020	U-235	0.036245	0.11161	0.11164	0.188	0.094	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-21	TLS-SB-IA3-D05 (8.4-9.4)03151C	ARS1-10-00580-020	GAM-A-020	U-235	0.033441	0.12959	0.12961	0.219	0.1095	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-17	TLS-SB-IA3-D06 (11.0-12.0)03151C	ARS1-10-00580-011	GAM-A-020	U-235	0.045123	0.088132	0.088186	0.148	0.074	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-16	TLS-SB-IA3-D06 (6.4-7.4)03151C	ARS1-10-00580-010	GAM-A-020	U-235	0.065045	0.088893	0.089003	0.148	0.074	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-15	TLS-SB-IA3-D07 (11.0-12.0)03151C	ARS1-10-00580-006	GAM-A-020	U-235	0.03833	0.10798	0.10802	0.182	0.091	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-14	TLS-SB-IA3-D07 (9.6-10.6)03151C	ARS1-10-00580-004	GAM-A-020	U-235	0.097573	0.10238	0.1026	0.171	0.0855	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-18	TLS-SS-IA3-D05 (0.6-1.1)03151C	ARS1-10-00580-017	GAM-A-020	U-235	0.10488	0.10249	0.10308	0.139	0.0695	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-13	TLS-SS-IA3-D07 (1.1-1.6)03151C	ARS1-10-00580-001	GAM-A-020	U-235	0.048292	0.083883	0.083947	0.141	0.0705	pCi	g	ARS1-B10-04468		1	U	U				
ARS1-B10-04468-04	TLS-SB-IA3-D10 (1.3-2.3)03121C	ARS1-10-00578-002	GAM-A-020	U-238	0.97748	0.28046	0.28949	0.615	0.3075	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-05	TLS-SB-IA3-D10 (2.3-3.3)03121C	ARS1-10-00578-003	GAM-A-020	U-238	0.85358	0.2491	0.25724	0.45	0.225	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-06	TLS-SB-IA3-D10 (3.3-4.3)031210D	ARS1-10-00578-005	GAM-A-020	U-238	0.72755	0.18086	0.18752	0.418	0.209	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-07	TLS-SB-IA3-D10 (8.0-9.0)03121C	ARS1-10-00578-006	GAM-A-020	U-238	0.81123	0.258	0.26512	0.491	0.2455	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-08	TLS-SS-IA3-D09 (0.4-0.9)03121C	ARS1-10-00578-007	GAM-A-020	U-238	2.2194	0.52257	0.54736	0.732	0.366	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-09	TLS-SB-IA3-D09 (10.0-11.0)03121C	ARS1-10-00578-011	GAM-A-020	U-238	0.77291	0.19938	0.20621	0.374	0.187	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-10	TLS-SB-IA3-D08 (3.0-4.0)03121C	ARS1-10-00578-024	GAM-A-020	U-238	1.0231	0.2588	0.27	0.48	0.24	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-11	TLS-SB-IA3-D08 (6.0-7.0)03121C	ARS1-10-00578-025	GAM-A-020	U-238	0.63317	0.20859	0.2137	0.371	0.1855	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-12	TLS-SB-IA3-D08 (10.0-11.0)03121C	ARS1-10-00578-026	GAM-A-020	U-238	0.80857	0.25573	0.26252	0.494	0.247	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-23	TLS-SB-IA3-D03 (0.7-1.7)03151C	ARS1-10-00580-023	GAM-A-020	U-238	0.7969	0.20559	0.21262	0.395	0.1975	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-25	TLS-SB-IA3-D03 (10.0-11.0)03151C	ARS1-10-00580-025	GAM-A-020	U-238	0.65022	0.27237	0.27652	0.373	0.1865	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-26	TLS-SB-IA3-D03 (11.0-12.0)03151C	ARS1-10-00580-026	GAM-A-020	U-238	1.4013	0.36271	0.3777	0.651	0.3255	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-24	TLS-SB-IA3-D03 (6.1-7.1)03151C	ARS1-10-00580-024	GAM-A-020	U-238	0.71513	0.21293	0.21842	0.449	0.2245	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-19	TLS-SB-IA3-D05 (1.5-2.5)03151C	ARS1-10-00580-018	GAM-A-020	U-238	1.2775	0.30642	0.32044	0.639	0.3195	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-22	TLS-SB-IA3-D05 (10.0-11.0)03151C	ARS1-10-00580-021	GAM-A-020	U-238	0.88001	0.19875	0.20897	0.44	0.22	pCi	g	ARS1-B10-04468		1						

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - Soils Radiological **March 2011**

ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	ABatch	TracerRecovery	Dilution	Lab Qual	Final Qual.	Normalized Absolute Difference	MB: Normalized Absolute Difference	MB>Primary	Comment
ARS1-B10-04468-20	TLS-SB-IA3-D05 (4.0-5.0)03151(	ARS1-10-00580-019	GAM-A-020	U-238	0.79603	0.26276	0.26917	0.497	0.2485	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-21	TLS-SB-IA3-D05 (8.4-9.4)03151(	ARS1-10-00580-020	GAM-A-020	U-238	1.0639	0.3255	0.33503	0.609	0.3045	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-17	TLS-SB-IA3-D06 (11.0-12.0)03151(	ARS1-10-00580-011	GAM-A-020	U-238	0.80406	0.19656	0.20551	0.437	0.2185	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-16	TLS-SB-IA3-D06 (6.4-7.4)03151(	ARS1-10-00580-010	GAM-A-020	U-238	0.79061	0.29719	0.30307	0.409	0.2045	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-15	TLS-SB-IA3-D07 (11.0-12.0)03151(	ARS1-10-00580-006	GAM-A-020	U-238	0.8063	0.23466	0.24236	0.501	0.2505	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-14	TLS-SB-IA3-D07 (9.6-10.6)03151(	ARS1-10-00580-004	GAM-A-020	U-238	0.94619	0.32423	0.33158	0.585	0.2925	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-18	TLS-SS-IA3-D05 (0.6-1.1)03151(	ARS1-10-00580-017	GAM-A-020	U-238	1.0329	0.31852	0.32619	0.629	0.3145	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04468-13	TLS-SS-IA3-D07 (1.1-1.6)03151(	ARS1-10-00580-001	GAM-A-020	U-238	0.94833	0.22164	0.23231	0.479	0.2395	pCi	g	ARS1-B10-04468		1						
ARS1-B10-04510-05	TLS-SB-IA3-D04 (1.4-2.4)03151(	ARS1-10-00580-028	GAM-A-020	AM-241	0.048984	0.045192	0.045254	0.0596	0.0298	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-06	TLS-SB-IA3-D04 (2.4-3.4)03151(	ARS1-10-00580-029	GAM-A-020	AM-241	-0.02437	0.088487	0.088496	0.0786	0.0393	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-07	TLS-SB-IA3-D04 (3.4-4.4)03151(	ARS1-10-00580-030	GAM-A-020	AM-241	-0.00538	0.13494	0.13494	0.0425	0.02125	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-04	TLS-SS-IA3-D04 (0.3-0.8)03151(	ARS1-10-00580-027	GAM-A-020	AM-241	-0.00017	0.04235	0.04235	0.0688	0.0344	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-12	TLS-SB-IA3-D01 (8.0-9.0)03161(	ARS1-10-00591-014	GAM-A-020	AM-241	0.000407	0.028708	0.028708	0.0478	0.0239	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-09	TLS-SB-IA3-D02 (10.0-11.0)03161(	ARS1-10-00591-010	GAM-A-020	AM-241	0.006455	0.031004	0.031006	0.0517	0.02585	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-10	TLS-SB-IA3-D02 (11.0-12.0)03161(	ARS1-10-00591-011	GAM-A-020	AM-241	0.002048	0.027118	0.027118	0.0454	0.0227	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-08	TLS-SB-IA3-D02 (2.7-3.7)03161(	ARS1-10-00591-009	GAM-A-020	AM-241	0.009721	0.033058	0.033061	0.0551	0.02755	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-11	TLS-SS-IA3-D01 (2.1-2.6)03161(	ARS1-10-00591-012	GAM-A-020	AM-241	0.016432	0.049225	0.049232	0.0818	0.0409	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-05	TLS-SB-IA3-D04 (1.4-2.4)03151(	ARS1-10-00580-028	GAM-A-020	RA-226	1.5981	0.37917	0.41356	0.522	0.261	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-06	TLS-SB-IA3-D04 (2.4-3.4)03151(	ARS1-10-00580-029	GAM-A-020	RA-226	3.6299	0.76194	0.78338	0.856	0.428	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-07	TLS-SB-IA3-D04 (3.4-4.4)03151(	ARS1-10-00580-030	GAM-A-020	RA-226	1.651	0.32816	0.33792	0.452	0.226	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-04	TLS-SS-IA3-D04 (0.3-0.8)03151(	ARS1-10-00580-027	GAM-A-020	RA-226	1.7829	0.46222	0.47036	0.778	0.389	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-12	TLS-SB-IA3-D01 (8.0-9.0)03161(	ARS1-10-00591-014	GAM-A-020	RA-226	2.807	0.50235	0.52164	0.614	0.307	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-09	TLS-SB-IA3-D02 (10.0-11.0)03161(	ARS1-10-00591-010	GAM-A-020	RA-226	1.5834	0.42605	0.43339	0.545	0.2725	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-10	TLS-SB-IA3-D02 (11.0-12.0)03161(	ARS1-10-00591-011	GAM-A-020	RA-226	1.4457	0.39196	0.39827	0.492	0.246	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-08	TLS-SB-IA3-D02 (2.7-3.7)03161(	ARS1-10-00591-009	GAM-A-020	RA-226	1.5156	0.31566	0.35236	0.456	0.228	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-11	TLS-SS-IA3-D01 (2.1-2.6)03161(	ARS1-10-00591-012	GAM-A-020	RA-226	3.9193	0.85242	0.87472	1.05	0.525	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-05	TLS-SB-IA3-D04 (1.4-2.4)03151(	ARS1-10-00580-028	GAM-A-020	RA-228	1.2294	0.1324	0.15966	0.116	0.058	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-06	TLS-SB-IA3-D04 (2.4-3.4)03151(	ARS1-10-00580-029	GAM-A-020	RA-228	1.3961	0.16155	0.18301	0.136	0.068	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-07	TLS-SB-IA3-D04 (3.4-4.4)03151(	ARS1-10-00580-030	GAM-A-020	RA-228	0.88949	0.069097	0.087868	0.0795	0.03975	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-04	TLS-SS-IA3-D04 (0.3-0.8)03151(	ARS1-10-00580-027	GAM-A-020	RA-228	1.1951	0.1033	0.12645	0.103	0.0515	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-12	TLS-SB-IA3-D01 (8.0-9.0)03161(	ARS1-10-00591-014	GAM-A-020	RA-228	1.2354	0.10181	0.12631	0.101	0.0505	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-09	TLS-SB-IA3-D02 (10.0-11.0)03161(	ARS1-10-00591-010	GAM-A-020	RA-228	0.82789	0.1056	0.11727	0.1	0.05	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-10	TLS-SB-IA3-D02 (11.0-12.0)03161(	ARS1-10-00591-011	GAM-A-020	RA-228	0.8367	0.094477	0.10739	0.0942	0.0471	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-08	TLS-SB-IA3-D02 (2.7-3.7)03161(	ARS1-10-00591-009	GAM-A-020	RA-228	1.1002	0.082752	0.115	0.101	0.0505	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-11	TLS-SS-IA3-D01 (2.1-2.6)03161(	ARS1-10-00591-012	GAM-A-020	RA-228	1.1787	0.13147	0.14957	0.131	0.0655	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-05	TLS-SB-IA3-D04 (1.4-2.4)03151(	ARS1-10-00580-028	GAM-A-020	U-234	1.2571	0.354	0.3642	0.681	0.3405	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-06	TLS-SB-IA3-D04 (2.4-3.4)03151(	ARS1-10-00580-029	GAM-A-020	U-234	1.4597	0.40116	0.41521	0.741	0.3705	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-07	TLS-SB-IA3-D04 (3.4-4.4)03151(	ARS1-10-00580-030	GAM-A-020	U-234	0.86368	0.19594	0.20593	0.442	0.221	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-04	TLS-SS-IA3-D04 (0.3-0.8)03151(	ARS1-10-00580-027	GAM-A-020	U-234	1.1186	0.34187	0.35158	0.694	0.347	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-12	TLS-SB-IA3-D01 (8.0-9.0)03161(	ARS1-10-00591-014	GAM-A-020	U-234	1.6052	0.30222	0.32508	0.567	0.2835	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-09	TLS-SB-IA3-D02 (10.0-11.0)03161(	ARS1-10-00591-010	GAM-A-020	U-234	0.673	0.23485	0.23998	0.494	0.247	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-10	TLS-SB-IA3-D02 (11.0-12.0)03161(	ARS1-10-00591-011	GAM-A-020	U-234	0.61913	0.25651	0.2607	0.377	0.1885	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-08	TLS-SB-IA3-D02 (2.7-3.7)03161(	ARS1-10-00591-009	GAM-A-020	U-234	0.93768	0.23164	0.24027	0.515	0.2575	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-11	TLS-SS-IA3-D01 (2.1-2.6)03161(	ARS1-10-00591-012	GAM-A-020	U-234	2.0733	0.48393	0.50805	0.872	0.436	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-05	TLS-SB-IA3-D04 (1.4-2.4)03151(	ARS1-10-00580-028	GAM-A-020	U-235	0.002012	0.10804	0.10804	0.183	0.0915	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-06	TLS-SB-IA3-D04 (2.4-3.4)03151(	ARS1-10-00580-029	GAM-A-020	U-235	0.095612	0.15265	0.15279	0.255	0.1275	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-07	TLS-SB-IA3-D04 (3.4-4.4)03151(	ARS1-10-00580-030	GAM-A-020	U-235	0.063631	0.075967	0.07609	0.127	0.0635	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-04	TLS-SS-IA3-D04 (0.3-0.8)03151(	ARS1-10-00580-027	GAM-A-020	U-235	0.10886	0.12219	0.12241	0.204	0.102	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-12	TLS-SB-IA3-D01 (8.0-9.0)03161(	ARS1-10-00591-014	GAM-A-020	U-235	0.055952	0.1058	0.10586	0.178	0.089	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-09	TLS-SB-IA3-D02 (10.0-11.0)03161(	ARS1-10-00591-010	GAM-A-020	U-235	0.038761	0.10398	0.10401	0.174	0.087	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-10	TLS-SB-IA3-D02 (11.0-12.0)03161(	ARS1-10-00591-011	GAM-A-020	U-235	0.048303	0.086022	0.086085	0.144	0.072	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-08	TLS-SB-IA3-D02 (2.7-3.7)03161(	ARS1-10-00591-009	GAM-A-020	U-235	0.11753	0.093062	0.093878	0.119	0.0595	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-11	TLS-SS-IA3-D01 (2.1-2.6)03161(	ARS1-10-00591-012	GAM-A-020	U-235	0.083379	0.16087	0.16097	0.271	0.1355	pCi	g	ARS1-B10-04510		1	U	U				
ARS1-B10-04510-05	TLS-SB-IA3-D04 (1.4-2.4)03151(	ARS1-10-00580-028	GAM-A-020	U-238	1.2571	0.354	0.3642	0.681	0.3405	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-06	TLS-SB-IA3-D04 (2.4-3.4)03151(	ARS1-10-00580-029	GAM-A-020	U-238	1.4597	0.40116	0.41521	0.741	0.3705	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-07	TLS-SB-IA3-D04 (3.4-4.4)03151(	ARS1-10-00580-030	GAM-A-020	U-238	0.86368	0.19594	0.20593	0.442	0.221	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-04	TLS-SS-IA3-D04 (0.3-0.8)03151(	ARS1-10-00580-027	GAM-A-020	U-238	1.1186	0.34187	0.35158	0.694	0.347	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-12	TLS-SB-IA3-D01 (8.0-9.0)03161(	ARS1-10-00591-014	GAM-A-020	U-238	1.6052	0.30222	0.32508	0.567	0.2835	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-09	TLS-SB-IA3-D02 (10.0-11.0)03161(	ARS1-10-00591-010	GAM-A-020	U-238	0.673	0.23485	0.23998	0.494	0.247	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-10	TLS-SB-IA3-D02 (11.0-12.0)03161(	ARS1-10-00591-011	GAM-A-020	U-238	0.61913	0.25651	0.2607	0.377	0.1885	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-08	TLS-SB-IA3-D02 (2.7-3.7)03161(	ARS1-10-00591-009	GAM-A-020	U-238	0.93768	0.23164	0.24027	0.515	0.2575	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04510-11	TLS-SS-IA3-D01 (2.1-2.6)03161(	ARS1-10-00591-012	GAM-A-020	U-238	2.0733	0.48393	0.50805	0.872	0.436	pCi	g	ARS1-B10-04510		1						
ARS1-B10-04573-04	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	GAM-A-020	AM-241	0.000646	0.025832	0.025832	0.0434	0.0217	pCi	g	ARS1-B10-04573		1	U	U				
ARS1-B10-04573-04	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	GAM-A-020	RA-226	1.8233	0.41793	0.42732	0.565	0.2825	pCi	g	ARS1-B10-04573		1						
ARS1-B10-04573-04	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	GAM-A-020	RA-228	0.61594	0.076069	0.084849	0.0884	0.0442	pCi	g	ARS1-B10-04573		1						
ARS1-B10-04573-04	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	GAM-A-020	U-234	0.80666	0.30876	0.31438	0.468	0.234	pCi	g	ARS1-B10-04573		1						
ARS1-B10-04573-04	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	GAM-A-020	U-235	0.045571	0.085324	0.08538	0.144	0.072	pCi	g	ARS1-B10-04573		1	U	U				
ARS1-B10-04573-04	TLS-SB-IA6-13 (21.6-22.6)031610	ARS1-10-00591-029	GAM-A-020	U-238	0.80666	0.30876	0.31438	0.468	0.234	pCi	g	ARS1-B10-04573		1						

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ABatchSampleID	Sample ID	LabSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	Matrix	ProcedureNo	CollectionDate	ABatch	TracerRecovery	Dilution	Lab Qualifier	Final Qualifier	CAS_ID	Comment
ARS1-B10-02517-04	TLSP22-TWP-11	ARS1-10-01035-001	ASP-A-009	TH-228	1.009663	0.329443	0.351317	0.293748	0.115585	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.785671	1			14274-82-9	
ARS1-B10-02517-04	TLSP22-TWP-11	ARS1-10-01035-001	ASP-A-009	TH-230	1.367226	0.352556	0.38936	0.195119	0.067145	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.785671	1			14269-63-7	
ARS1-B10-02517-04	TLSP22-TWP-11	ARS1-10-01035-001	ASP-A-009	TH-232	0.888811	0.287258	0.306686	0.191036	0.065164	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.785671	1			7440-29-1	
ARS1-B10-02517-05	TLSP22-TWP-03D	ARS1-10-01035-002	ASP-A-009	TH-228	0.596651	0.279861	0.289002	0.288767	0.107843	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.733698	1			14274-82-9	
ARS1-B10-02517-05	TLSP22-TWP-03D	ARS1-10-01035-002	ASP-A-009	TH-230	1.51057	0.390811	0.431352	0.107314	0.018102	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.733698	1			14269-63-7	
ARS1-B10-02517-05	TLSP22-TWP-03D	ARS1-10-01035-002	ASP-A-009	TH-232	0.900951	0.301058	0.320145	0.070967	0	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.733698	1			7440-29-1	
ARS1-B10-02517-06	TLSP22-TWP-09	ARS1-10-00885-001	ASP-A-009	TH-228	1.397339	0.248882	0.300772	0.111099	0.040502	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.353245	1			14274-82-9	
ARS1-B10-02517-06	TLSP22-TWP-09	ARS1-10-00885-001	ASP-A-009	TH-230	2.530692	0.325802	0.446876	0.08701	0.028876	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.353245	1			14269-63-7	
ARS1-B10-02517-06	TLSP22-TWP-09	ARS1-10-00885-001	ASP-A-009	TH-232	1.647475	0.263105	0.329956	0.083078	0.026939	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.353245	1			7440-29-1	
ARS1-B10-02517-07	TLSP22-TWP-04	ARS1-10-00885-002	ASP-A-009	TH-228	1.984652	0.339243	0.415477	0.180493	0.071067	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.681094	1			14274-82-9	
ARS1-B10-02517-07	TLSP22-TWP-04	ARS1-10-00885-002	ASP-A-009	TH-230	2.354317	0.354373	0.454473	0.093518	0.028113	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.681094	1			14269-63-7	
ARS1-B10-02517-07	TLSP22-TWP-04	ARS1-10-00885-002	ASP-A-009	TH-232	1.89855	0.317242	0.391528	0.073932	0.018357	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.681094	1			7440-29-1	
ARS1-B10-02517-08	TLSP22-TWP-02	ARS1-10-00885-003	ASP-A-009	TH-228	3.986567	0.451461	0.660277	0.134367	0.049458	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.282148	1		J	14274-82-9	Tracer Recovery < Lab acceptance criteria
ARS1-B10-02517-08	TLSP22-TWP-02	ARS1-10-00885-003	ASP-A-009	TH-230	4.668261	0.478889	0.740044	0.093364	0.029447	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.282148	1		J	14269-63-7	Tracer Recovery < Lab acceptance criteria
ARS1-B10-02517-08	TLSP22-TWP-02	ARS1-10-00885-003	ASP-A-009	TH-232	3.721138	0.426941	0.620116	0.082392	0.023996	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.282148	1		J	7440-29-1	Tracer Recovery < Lab acceptance criteria
ARS1-B10-02517-09	TLSP22-TWP-01	ARS1-10-00885-004	ASP-A-009	TH-228	1.474675	0.333634	0.378256	0.203193	0.076985	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.816466	1			14274-82-9	
ARS1-B10-02517-09	TLSP22-TWP-01	ARS1-10-00885-004	ASP-A-009	TH-230	1.803039	0.353079	0.414913	0.129596	0.040875	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.816466	1			14269-63-7	
ARS1-B10-02517-09	TLSP22-TWP-01	ARS1-10-00885-004	ASP-A-009	TH-232	1.376234	0.306505	0.348729	0.094855	0.023552	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.816466	1			7440-29-1	
ARS1-B10-02517-10	TLSP22-TWP-05	ARS1-10-00885-005	ASP-A-009	TH-228	3.289252	0.577781	0.701334	0.345674	0.140024	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.39731	1			14274-82-9	
ARS1-B10-02517-10	TLSP22-TWP-05	ARS1-10-00885-005	ASP-A-009	TH-230	2.991183	0.525467	0.637816	0.189646	0.062926	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.39731	1			14269-63-7	
ARS1-B10-02517-10	TLSP22-TWP-05	ARS1-10-00885-005	ASP-A-009	TH-232	4.138304	0.614556	0.792361	0.172439	0.054387	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.39731	1			7440-29-1	
ARS1-B10-02517-11	TLSP22-TWP-06	ARS1-10-00885-006	ASP-A-009	TH-228	4.625903	1.522358	1.621775	1.39797	0.5557	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.807125	1			14274-82-9	
ARS1-B10-02517-11	TLSP22-TWP-06	ARS1-10-00885-006	ASP-A-009	TH-230	3.917561	1.264768	1.350488	0.663421	0.19242	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.807125	1			14269-63-7	
ARS1-B10-02517-11	TLSP22-TWP-06	ARS1-10-00885-006	ASP-A-009	TH-232	2.98323	1.096552	1.154308	0.552225	0.1371	pCi	g	SO	ARS-031	4/20/2010	ARS1-B10-02517	0.807125	1			7440-29-1	
ARS1-B10-02517-12	TLSP22-TWP-03	ARS1-10-00914-001	ASP-A-009	TH-228	2.693194	1.369266	1.407424	1.561074	0.602476	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.095794	1		J	14274-82-9	Tracer Recovery < Lab acceptance criteria
ARS1-B10-02517-12	TLSP22-TWP-03	ARS1-10-00914-001	ASP-A-009	TH-230	10.96259	2.338306	2.687592	0.829676	0.241583	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.095794	1		J	14269-63-7	Tracer Recovery < Lab acceptance criteria
ARS1-B10-02517-12	TLSP22-TWP-03	ARS1-10-00914-001	ASP-A-009	TH-232	3.049443	1.304299	1.355371	1.108241	0.381213	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.095794	1		J	7440-29-1	Tracer Recovery < Lab acceptance criteria
ARS1-B10-02517-13	TLSP22-TWP-07	ARS1-10-00914-002	ASP-A-009	TH-228	11.2067	22.37543	22.41639	41.42677	14.97321	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.847533	1	U	U	14274-82-9	
ARS1-B10-02517-13	TLSP22-TWP-07	ARS1-10-00914-002	ASP-A-009	TH-230	44.53503	29.52105	30.00773	33.00993	10.95117	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.847533	1			14269-63-7	
ARS1-B10-02517-13	TLSP22-TWP-07	ARS1-10-00914-002	ASP-A-009	TH-232	12.22933	19.01971	19.07706	32.94388	10.92926	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.847533	1	U	U	7440-29-1	
ARS1-B10-02517-14	TLSP22-TWP-08	ARS1-10-00914-003	ASP-A-009	TH-228	2.258276	1.499	1.523645	1.961695	0.756932	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.911298	1			14274-82-9	
ARS1-B10-02517-14	TLSP22-TWP-08	ARS1-10-00914-003	ASP-A-009	TH-230	5.368766	1.866213	1.9758	1.120864	0.342567	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.911298	1			14269-63-7	
ARS1-B10-02517-14	TLSP22-TWP-08	ARS1-10-00914-003	ASP-A-009	TH-232	1.968597	1.161946	1.186055	1.055245	0.310193	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.911298	1			7440-29-1	
ARS1-B10-02517-15	TLSP22-TWP-013	ARS1-10-00914-004	ASP-A-009	TH-228	4.513769	0.82628	0.990126	0.421019	0.159999	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.803484	1			14274-82-9	
ARS1-B10-02517-15	TLSP22-TWP-013	ARS1-10-00914-004	ASP-A-009	TH-230	3.891503	0.745411	0.881389	0.292077	0.096884	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.803484	1			14269-63-7	
ARS1-B10-02517-15	TLSP22-TWP-013	ARS1-10-00914-004	ASP-A-009	TH-232	4.364649	0.781249	0.942666	0.194802	0.048345	pCi	g	SO	ARS-031	4/21/2010	ARS1-B10-02517	0.803484	1			7440-29-1	
ARS1-B10-02539-12	TLSP22-TWP-11	ARS1-10-01035-001	GAM-A-020	RA-226	7.5483	17.243	17.247	29.9	14.95	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	13982-63-3	
ARS1-B10-02539-12	TLSP22-TWP-11	ARS1-10-01035-001	GAM-A-020	RA-228	0.75045	3.5321	3.5324	6.19	3.095	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	15262-20-1	
ARS1-B10-02539-12	TLSP22-TWP-11	ARS1-10-01035-001	GAM-A-020	U-234	-2.9508	17.563	17.564	26.7	13.35	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	13966-29-5	
ARS1-B10-02539-12	TLSP22-TWP-11	ARS1-10-01035-001	GAM-A-020	U-235	0.87063	4.1576	4.158	7.22	3.61	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	15117-96-1	
ARS1-B10-02539-12	TLSP22-TWP-11	ARS1-10-01035-001	GAM-A-020	U-238	-2.9508	17.563	17.564	26.7	13.35	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	7440-61-1	
ARS1-B10-02539-13	TLSP22-TWP-03D	ARS1-10-01035-002	GAM-A-020	RA-226	-2.7768	8.633	8.6341	12.1	6.05	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	13982-63-3	
ARS1-B10-02539-13	TLSP22-TWP-03D	ARS1-10-01035-002	GAM-A-020	RA-228	0.061313	1.4142	1.4142	2.62	1.31	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	15262-20-1	
ARS1-B10-02539-13	TLSP22-TWP-03D	ARS1-10-01035-002	GAM-A-020	U-234	14.777	3.9852	4.1372	8.99	4.495	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1			13966-29-5	
ARS1-B10-02539-13	TLSP22-TWP-03D	ARS1-10-01035-002	GAM-A-020	U-235	-0.2548	2.1673	2.1673	2.94	1.47	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1	U	U	15117-96-1	
ARS1-B10-02539-13	TLSP22-TWP-03D	ARS1-10-01035-002	GAM-A-020	U-238	14.777	3.9852	4.1372	8.99	4.495	pCi	g	SO	ARS-007	4/20/2010	ARS1-B10-02539		1			7440-61-1	

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ABatchSampleID	AnalysisCode	Isotope	ACT	CU	TPU	MDA	DL	ActUnits	AliqUnits	SampleType	ABatch	TracerRecovery	Dilution	Lab Qual	CAS_ID	Rec_Prcnt	LCL	UCL	Spk_Amount	RPD	Normalized Absolute Difference QC	Normalized Absolute Difference QC (DU/P)	MB (ACT/TPU > 2.0)) MARLAP	MB > DL	PERCENT RECOVERY	RPD	SampleType	
ARS1-B10-02258-01	AGS-A-001	RA-226	7.76	0.386029	2.232414	0.119353	0.053084	pCi	L	LCS	ARS1-B10-02258	1	1		13982-63-3												LCS	LCS information not provided
ARS1-B10-02258-02	AGS-A-001	RA-226	17.9	0.598978	5.107757	0.097549	0.041754	pCi	L	LCSD	ARS1-B10-02258	1	1		13982-63-3							1.82				79.0	LCSD	LCSD information not provided .
ARS1-B10-02258-03	AGS-A-001	RA-226	-0.087	0.081829	0.085466	0.163347	0.075776	pCi	L	MBL	ARS1-B10-02258	1	1	U	13982-63-3									n			MBL	MB<DL
ARS1-B10-02337-01	AGS-A-001	RA-226	23.76	0.659341	6.765287	0.089241	0.038198	pCi	L	LCS	ARS1-B10-02337	1	1		13982-63-3												LCS	LCS information not provided
ARS1-B10-02337-02	AGS-A-001	RA-226	20.21	0.58723	5.757404	0.070235	0.029121	pCi	L	LCSD	ARS1-B10-02337	1	1		13982-63-3							0.40				16.1	LCSD	LCSD information not provided .
ARS1-B10-02337-03	AGS-A-001	RA-226	0.15	0.071947	0.083618	0.098776	0.043567	pCi	L	MBL	ARS1-B10-02337	1	1		13982-63-3						1.7983042			Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02549-01	AGS-A-001	RA-226	23.39	0.58557	6.654159	0.074042	0.031872	pCi	L	LCS	ARS1-B10-02549	1	1		13982-63-3												LCS	LCS information not provided
ARS1-B10-02549-02	AGS-A-001	RA-226	26.66	0.619705	7.579187	0.104853	0.047387	pCi	L	LCSD	ARS1-B10-02549	1	1		13982-63-3							0.32				13.1	LCSD	LCSD information not provided .
ARS1-B10-02549-03	AGS-A-001	RA-226	0.089	0.064704	0.069487	0.099693	0.04434	pCi	L	MBL	ARS1-B10-02549	1	1	U	13982-63-3									n			MBL	MB<DL
ARS1-B10-02460-01	ASP-A-008	TH-230	5.183	0.251202	0.674946	0.025498	0.008462	pCi	L	LCS	ARS1-B10-02460	1.2198797	1		14269-63-7	90.064	75	125	5.75145		0.84				90		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02460-02	ASP-A-008	TH-230	4.71	0.249497	0.621491	0.023355	0.007021	pCi	L	LCSD	ARS1-B10-02460	1.0477872	1		14269-63-7	90.064	75	125	5.7656	9.505	1.70	0.52			82	9.6	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02460-03	ASP-A-008	TH-228	0.012	0.023015	0.023063	0.041834	0.015398	pCi	L	MBL	ARS1-B10-02460	0.9260780	1	U	14274-82-9									n			MBL	MB<DL
ARS1-B10-02460-03	ASP-A-008	TH-230	0.019	0.020666	0.020798	0.029771	0.00939	pCi	L	MBL	ARS1-B10-02460	0.9260780	1	U	14269-63-7									n			MBL	MB<DL
ARS1-B10-02460-03	ASP-A-008	TH-232	-0.004	0.005095	0.005114	0.026272	0.007651	pCi	L	MBL	ARS1-B10-02460	0.9260780	1	U	7440-29-1									n			MBL	MB<DL
ARS1-B10-02555-01	ASP-A-008	TH-230	5.168	0.276508	0.683035	0.020735	0.005152	pCi	L	LCS	ARS1-B10-02555	0.9754625	1		14269-63-7	89.582	75	125	5.77125		0.88				90		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02555-02	ASP-A-008	TH-230	6.108	0.276653	0.788394	0.01756	0.004362	pCi	L	LCSD	ARS1-B10-02555	1.1717567	1		14269-63-7	89.582	75	125	5.76842	16.67	0.43	0.90			106	16.7	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02555-03	ASP-A-008	TH-228	0.006	0.028978	0.028987	0.057669	0.022827	pCi	L	MBL	ARS1-B10-02555	0.8412213	1	U	14274-82-9									n			MBL	MB<DL
ARS1-B10-02555-03	ASP-A-008	TH-230	0.02	0.022371	0.022499	0.033456	0.010746	pCi	L	MBL	ARS1-B10-02555	0.8412213	1	U	14269-63-7									n			MBL	MB<DL
ARS1-B10-02555-03	ASP-A-008	TH-232	-0.003	0.004564	0.004575	0.025643	0.006851	pCi	L	MBL	ARS1-B10-02555	0.8412213	1	U	7440-29-1									n			MBL	MB<DL
ARS1-B10-02517-01	ASP-A-009	TH-230	4.021	0.218054	0.532611	0.016574	0.004118	pCi	g	LCS	ARS1-B10-02517	1.2203926	1		14269-63-7	88.968	75	125	5.75485		3.26				70		LCS	LCS:Z-Score (normalized dif.) > 3.00 -differ significantly when compared to their respective CSU
ARS1-B10-02517-02	ASP-A-009	TH-230	5.125	0.271285	0.676182	0.020124	0.004999	pCi	g	LCSD	ARS1-B10-02517	1.0224857	1		14269-63-7	88.968	75	125	5.75485	24.07	0.93	1.28			89	24.1	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02517-03	ASP-A-009	TH-228	0.004	0.023015	0.023019	0.046444	0.018384	pCi	g	MBL	ARS1-B10-02517	1.0467755	1	U	14274-82-9									n			MBL	MB<DL
ARS1-B10-02517-03	ASP-A-009	TH-230	0.009	0.015121	0.015161	0.026886	0.008636	pCi	g	MBL	ARS1-B10-02517	1.0467755	1	U	14269-63-7									n			MBL	MB<DL
ARS1-B10-02517-03	ASP-A-009	TH-232	-0.002	0.003668	0.003677	0.020607	0.005506	pCi	g	MBL	ARS1-B10-02517	1.0467755	1	U	7440-29-1									n			MBL	MB<DL
ARS1-B10-02488-01	ASP-A-024	U-234	17.12	0.56067	2.143487	0.02573	0.006389	pCi	L	LCS	ARS1-B10-02488	0.7534171	1		13966-29-5												LCS	
ARS1-B10-02488-01	ASP-A-024	U-238	17.53	0.567045	2.19383	0.03843	0.012752	pCi	L	LCS	ARS1-B10-02488	0.7534171	1		7440-61-1	104.18	75	125	16.7986		0.34				104		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02488-02	ASP-A-024	U-234	16.74	0.555508	2.098576	0.037448	0.012228	pCi	L	LCSD	ARS1-B10-02488	0.7834649	1		13966-29-5												LCSD	
ARS1-B10-02488-02	ASP-A-024	U-238	17.31	0.564011	2.166353	0.020176	0.003605	pCi	L	LCSD	ARS1-B10-02488	0.7834649	1		7440-61-1	104.18	75	125	16.7609	1.149	0.25	0.07			103	1.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02488-03	ASP-A-024	U-232	4.23	0.282674	0.584149	0.047852	0.017298	pCi	L	MBL	ARS1-B10-02488	0.7673083	1		14158-29-3						7.240737			Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02488-03	ASP-A-024	U-234	0.019	0.02183	0.021947	0.03202	0.009389	pCi	L	MBL	ARS1-B10-02488	0.7673083	1	U	13966-29-5									n			MBL	MB<DL
ARS1-B10-02488-03	ASP-A-024	U-235	-0.003	0.005041	0.00505	0.03049	0.007571	pCi	L	MBL	ARS1-B10-02488	0.7673083	1	U	15117-96-1									n			MBL	MB<DL
ARS1-B10-02488-03	ASP-A-024	U-238	0.013	0.020541	0.0206	0.035796	0.01129	pCi	L	MBL	ARS1-B10-02488	0.7673083	1	U	7440-61-1									n			MBL	MB<DL
ARS1-B10-02556-01	ASP-A-024	U-234	15.77	0.506	1.972	0.024	0.0063	pCi	L	LCS	ARS1-B10-02556	0.9149216	1		13966-29-5												LCS	
ARS1-B10-02556-01	ASP-A-024	U-238	17.24	0.5283	2.1497	0.039	0.138	pCi	L	LCS	ARS1-B10-02556	0.9149216	1		7440-61-1	102.74	75	125	16.742		0.23				103		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02556-02	ASP-A-024	U-234	14.79	0.4587	1.8458	0.0199	0.0049	pCi	L	LCSD	ARS1-B10-02556	0.9726195	1		13966-29-5												LCSD	
ARS1-B10-02556-02	ASP-A-024	U-238	15.78	0.4735	1.9657	0.0298	0.0099	pCi	L	LCSD	ARS1-B10-02556	0.9726195	1		7440-61-1	102.74	75	125	16.753	8.485	0.49	0.50			94	8.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02556-03	ASP-A-024	U-232	4.22	0.3103	0.597	0.0409	0.1244	pCi	L	MBL	ARS1-B10-02556	0.6348091	1		14158-29-3						7.0690117			Y			MBL	MB>MDA, (ACT/TPU>2.0 (MARLAP))
ARS1-B10-02556-03	ASP-A-024	U-234	0.014	0.0253	0.0254	0.0462	0.0151	pCi	L	MBL	ARS1-B10-02556	0.6348091	1	U	13966-29-5									n			MBL	MB<DL
ARS1-B10-02556-03	ASP-A-024	U-235	0	0.0134	0.0134	0.0186	0	pCi	L	MBL	ARS1-B10-02556	0.6348091	1	U	15117-96-1									n			MBL	MB<DL
ARS1-B10-02556-03	ASP-A-024	U-238	0.041	0.0308	0.0312	0.0249	0.0044	pCi	L	MBL	ARS1-B10-02556	0.6348091	1		7440-61-1						1.2980769			Y			MBL	MB>MDA, (ACT/TPU<2.0 (MARLAP))
ARS1-B10-02539-01	GAM-A-020	AM-241	33302	411.9136	2434.908	247.9	123.95	pCi	g	LCS	ARS1-B10-02539		1		14596-10-2	95.424	75	125	34896.7		0.65				95		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02539-01	GAM-A-020	CO-60	25561	482.5912	1024.041	232.1	116.05	pCi	g	LCS	ARS1-B10-02539		1		10198-40-0	100.81	75	125	25394.6		0.16				101		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02539-01	GAM-A-020	CS-137	15353	356.034	687.3916	157.3	78.65	pCi	g	LCS	ARS1-B10-02539		1		10045-97-3	99.898	75	125	15365.6		0.02				100		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02539-02	GAM-A-020	AM-241	34607	403.7404	2483.516	239.2	119.6	pCi	g	LCSD	ARS1-B10-02539		1		14596-10-2	99.898	75	125	34896.7	3.829	0.12	0.38			99	3.8	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02539-02	GAM-A-020	CO-60	24713	426.0648	972.5128	241.1	120.55	pCi	g	LCSD	ARS1-B10-02539		1		10198-40-0	99.898	75	125	25394.6	3.382	0.70	0.60			97	3.4	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02539-02	GAM-A-020	CS-137	15129	317.2848	660.6964	132.1	66.05	pCi	g	LCSD	ARS1-B10-02539		1		10045-97-3	99.898	75	125	15365.6	1.444	0.36	0.23			98	1.5	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02539-03	GAM-A-020	AM-241	-6E-04	0.011447	0.011447	0.00589	0.002945	pCi	g	MBL	ARS1-B10-02539		1	U	14596-10-2									n			MBL	MB<DL
ARS1-B10-02539-03	GAM-A-020	CO-60	1E-03	0.002133	0.002134	0.00367	0.001835	pCi	g	MBL	ARS1-B10-02539		1	U	10198-40-0									n			MBL	MB<DL
ARS1-B10-02539-03	GAM-A-020	CS-137	-0.002	0.547075	0.547075	0.00387	0.001935	pCi	g	MBL	ARS1-B10-02539		1	U	10045-97-3									n			MBL	MB<DL
ARS1-B10-02338-01	GPC-A-020	RA-228	13.83	1.331597	2.744724	1.078474	0.503172	pCi	L	LCS	ARS1-B10-02338	0.9201643	1		15262-20-1	84.656	75	125	16.3013		0.90				85		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02338-02	GPC-A-020	RA-228	12.85	1.306609	2.585216	1.200954	0.566105	pCi	L	LCSD	ARS1-B10-02338	0.9273733	1		15262-20-1	84.656	75	125	16.3013	6.742	1.33	0.26			79	7.3	LCSD	LCSD:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02338-03	GPC-A-020	RA-228	0.291	0.486359	0.488974	0.832147	0.386802	pCi	L	MBL	ARS1-B10-02338	0.8840662	1	U	15262-20-1									n			MBL	MB<DL
ARS1-B10-02338-03	GPC-A-020	RA-228	0.292	0.488591	0.491218	0.835968	0.388577	pCi	L	MBL	ARS1-B10-02338	0.8840662	1	U	15262-20-1									n			MBL	MB<DL
ARS1-B10-02543-01	GPC-A-020	RA-228	12.47	1.119013	2.437378	0.794031	0.367015	pCi	L	LCS	ARS1-B10-02543	0.7080964	1		15262-20-1	76.579	75	125	16.323		1.58				76		LCS	LCS:Z-Score (normalized dif.) < 1.98 -do not differ significantly when compared to their respective CSU
ARS1-B10-02543-02	GPC-A-020	RA-228	10.65	0.945812	2.076554	0.686988	0.31864	pCi	L	LCSD	ARS1-B10-02543	0.8554803	1		15262-20-1	76.579	75	125	16.3149	16.45	2.73	0.57			65	15.8	LCSD	LCSD:Z-Score (normalized dif.) > 1.98, <3.00 -differ slightly when compared to their respective CSU
ARS1-B10-02543-03	GPC-A-020	RA-228	0.126	0.419386	0.419957	0.741074	0.341391	pCi	L	MBL	ARS1-B10-02543	0.5830250	1	U	15262-20-1									n			MBL	MB<DL

Tonawanda Landfill RI Addendum - Sample Data Qualification Worksheet - GW Radiological

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ABatchSampleID	LabSampleID	Sample ID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	ProcedureNo	CollectionDate	ABatch	ChemRecovery	TracerRecovery	CAS_ID	Lab Qual	Final Qual	Comment
ARS1-B10-02258-04	ARS1-10-00915-001	TLSP22-TWP-03	AGS-A-001	0.49437	RA-226	0.10143	0.0684	0.173	pCi	0.0276	ARS-009	4/21/2010	ARS1-B10-02258		1	13982-63-3		J	LCS: NAD > 2.0 , <3.0 / LCS Rec outside of Lab acceptance criteria
ARS1-B10-02258-05	ARS1-10-00915-002	TLSP22-TWP-07	AGS-A-001	-0.0425	RA-226	0.09398	0.1773	0.0947	pCi	0.0822	ARS-009	4/21/2010	ARS1-B10-02258		1	13982-63-3	U	U	
ARS1-B10-02258-06	ARS1-10-00915-003	TLSP22-TWP-08	AGS-A-001	0.16787	RA-226	0.07311	0.0938	0.0872	pCi	0.0406	ARS-009	4/21/2010	ARS1-B10-02258		1	13982-63-3		J	LCS: NAD > 2.0 , <3.0 / LCS Rec outside of Lab acceptance criteria
ARS1-B10-02258-07	ARS1-10-00915-004	TLSP22-TWP-013	AGS-A-001	0.22913	RA-226	0.07186	0.0688	0.0968	pCi	0.0282	ARS-009	4/21/2010	ARS1-B10-02258		1	13982-63-3		J	LCS: NAD > 2.0 , <3.0 / LCS Rec outside of Lab acceptance criteria
ARS1-B10-02337-04	ARS1-10-00886-001	TLSP22-TWP-09	AGS-A-001	0	RA-226	0.09323	0.1686	0.0932	pCi	0.0782	ARS-009	4/20/2010	ARS1-B10-02337		1	13982-63-3	U	U	
ARS1-B10-02337-05	ARS1-10-00886-002	TLSP22-TWP-04	AGS-A-001	0.26512	RA-226	0.09824	0.1331	0.1237	pCi	0.0607	ARS-009	4/20/2010	ARS1-B10-02337		1	13982-63-3			
ARS1-B10-02337-06	ARS1-10-00886-003	TLSP22-TWP-02	AGS-A-001	11.7977	RA-226	0.46618	0.1009	3.3754	pCi	0.0441	ARS-009	4/20/2010	ARS1-B10-02337		1	13982-63-3			
ARS1-B10-02337-07	ARS1-10-00886-004	TLSP22-TWP-01	AGS-A-001	0.2315	RA-226	0.07425	0.082	0.0991	pCi	0.0353	ARS-009	4/20/2010	ARS1-B10-02337		1	13982-63-3			
ARS1-B10-02337-08	ARS1-10-00886-005	TLSP22-TWP-05	AGS-A-001	0.026	RA-226	0.09379	0.1653	0.0941	pCi	0.0768	ARS-009	4/20/2010	ARS1-B10-02337		1	13982-63-3	U	U	
ARS1-B10-02337-09	ARS1-10-00886-006	TLSP22-TWP-06	AGS-A-001	0.28202	RA-226	0.08564	0.1032	0.1171	pCi	0.0462	ARS-009	4/20/2010	ARS1-B10-02337		1	13982-63-3			
ARS1-B10-02549-04	ARS1-10-01034-001	TLSP22-TWP-11	AGS-A-001	0.25848	RA-226	0.0658	0.0498	0.0985	pCi	0.0198	ARS-009	4/20/2010	ARS1-B10-02549		1	13982-63-3			
ARS1-B10-02549-05	ARS1-10-01034-002	TLSP22-TWP-03D	AGS-A-001	0.16724	RA-226	0.05476	0.0569	0.0724	pCi	0.0238	ARS-009	4/20/2010	ARS1-B10-02549		1	13982-63-3			
ARS1-B10-02338-04	ARS1-10-00886-001	TLSP22-TWP-09	GPC-A-020	0.05086	RA-228	0.50665	0.9073	0.5067	pCi	0.4214	ARS-010	4/20/2010	ARS1-B10-02338	0.7516		15262-20-1	U	U	
ARS1-B10-02338-05	ARS1-10-00886-002	TLSP22-TWP-04	GPC-A-020	4.07235	RA-228	0.71398	0.7864	1.0047	pCi	0.3655	ARS-010	4/20/2010	ARS1-B10-02338	0.8727		15262-20-1			
ARS1-B10-02338-06	ARS1-10-00886-003	TLSP22-TWP-02	GPC-A-020	0.77021	RA-228	0.47023	0.7301	0.4889	pCi	0.3381	ARS-010	4/20/2010	ARS1-B10-02338	0.8699		15262-20-1			
ARS1-B10-02338-07	ARS1-10-00886-004	TLSP22-TWP-01	GPC-A-020	1.06692	RA-228	0.6641	1.0365	0.6894	pCi	0.481	ARS-010	4/20/2010	ARS1-B10-02338	0.6078		15262-20-1			
ARS1-B10-02338-08	ARS1-10-00886-005	TLSP22-TWP-05	GPC-A-020	0.26703	RA-228	0.74949	1.3109	0.7509	pCi	0.6091	ARS-010	4/20/2010	ARS1-B10-02338	0.4917		15262-20-1	U	U	
ARS1-B10-02338-09	ARS1-10-00886-006	TLSP22-TWP-06	GPC-A-020	0.35703	RA-228	0.69438	1.198	0.6971	pCi	0.5556	ARS-010	4/20/2010	ARS1-B10-02338	0.5653		15262-20-1	U	U	
ARS1-B10-02338-10	ARS1-10-00915-001	TLSP22-TWP-03	GPC-A-020	0.3851	RA-228	0.56472	0.9589	0.5687	pCi	0.4459	ARS-010	4/21/2010	ARS1-B10-02338	0.7543		15262-20-1	U	U	
ARS1-B10-02338-11	ARS1-10-00915-002	TLSP22-TWP-07	GPC-A-020	0.66929	RA-228	0.5773	0.9388	0.5889	pCi	0.436	ARS-010	4/21/2010	ARS1-B10-02338	0.7257		15262-20-1	U	U	
ARS1-B10-02338-12	ARS1-10-00915-003	TLSP22-TWP-08	GPC-A-020	0.73282	RA-228	0.58126	0.9369	0.595	pCi	0.4353	ARS-010	4/21/2010	ARS1-B10-02338	0.7288		15262-20-1	U	U	
ARS1-B10-02338-13	ARS1-10-00915-004	TLSP22-TWP-013	GPC-A-020	1.31971	RA-228	0.74349	1.1407	0.778	pCi	0.5286	ARS-010	4/21/2010	ARS1-B10-02338	0.5963					
ARS1-B10-02543-04	ARS1-10-01034-001	TLSP22-TWP-11	GPC-A-020	0.66727	RA-228	0.45868	0.7238	0.4731	pCi	0.3349	ARS-010	4/20/2010	ARS1-B10-02543	0.6234		15262-20-1	U	U	
ARS1-B10-02543-05	ARS1-10-01034-002	TLSP22-TWP-03D	GPC-A-020	0.35209	RA-228	0.42852	0.7185	0.4329	pCi	0.3329	ARS-010	4/20/2010	ARS1-B10-02543	0.655					
ARS1-B10-02460-04	ARS1-10-00886-001	TLSP22-TWP-09	ASP-A-008	0.12955	TH-228	0.09773	0.1333	0.099	pCi	0.0505	ARS-031	4/20/2010	ARS1-B10-02460		0.646	14274-82-9	U	U	
ARS1-B10-02460-05	ARS1-10-00886-002	TLSP22-TWP-04	ASP-A-008	-0.0049	TH-228	0.06705	0.1418	0.0671	pCi	0.0574	ARS-031	4/20/2010	ARS1-B10-02460		0.8231	14274-82-9	U	U	
ARS1-B10-02460-06	ARS1-10-00886-003	TLSP22-TWP-02	ASP-A-008	0.05515	TH-228	0.08457	0.1464	0.0848	pCi	0.0582	ARS-031	4/20/2010	ARS1-B10-02460		0.7015	14274-82-9	U	U	
ARS1-B10-02460-07	ARS1-10-00886-004	TLSP22-TWP-01	ASP-A-008	0.03173	TH-228	0.06199	0.1127	0.0621	pCi	0.0435	ARS-031	4/20/2010	ARS1-B10-02460		0.7987	14274-82-9	U	U	
ARS1-B10-02460-08	ARS1-10-00886-005	TLSP22-TWP-05	ASP-A-008	0.08105	TH-228	0.07162	0.1013	0.0723	pCi	0.0366	ARS-031	4/20/2010	ARS1-B10-02460		0.7574	14274-82-9	U	U	
ARS1-B10-02460-09	ARS1-10-00886-006	TLSP22-TWP-06	ASP-A-008	-0.0155	TH-228	0.0578	0.1382	0.0578	pCi	0.0533	ARS-031	4/20/2010	ARS1-B10-02460		0.7081	14274-82-9	U	U	
ARS1-B10-02460-10	ARS1-10-00915-001	TLSP22-TWP-03	ASP-A-008	0.06121	TH-228	0.06595	0.1035	0.0664	pCi	0.0393	ARS-031	4/21/2010	ARS1-B10-02460		0.8164	14274-82-9	U	U	
ARS1-B10-02460-11	ARS1-10-00915-002	TLSP22-TWP-07	ASP-A-008	0.00533	TH-228	0.04954	0.1056	0.0495	pCi	0.0399	ARS-031	4/21/2010	ARS1-B10-02460		0.8217	14274-82-9	U	U	
ARS1-B10-02460-12	ARS1-10-00915-003	TLSP22-TWP-08	ASP-A-008	0.09373	TH-228	0.05888	0.0723	0.06	pCi	0.027	ARS-031	4/21/2010	ARS1-B10-02460		1.1445	14274-82-9		J	Tracer Recovery exceeds laboratory accpetance criteria.
ARS1-B10-02460-13	ARS1-10-00915-004	TLSP22-TWP-013	ASP-A-008	0.07918	TH-228	0.05997	0.0793	0.0607	pCi	0.0289	ARS-031	4/21/2010	ARS1-B10-02460		0.9994	14274-82-9	U	U	
ARS1-B10-02555-04	ARS1-10-01034-001	TLSP22-TWP-11	ASP-A-008	0.07281	TH-228	0.06438	0.0961	0.065	pCi	0.0378	ARS-031	4/20/2010	ARS1-B10-02555		1.0136	14274-82-9	U	U	
ARS1-B10-02555-05	ARS1-10-01034-002	TLSP22-TWP-03D	ASP-A-008	0.06936	TH-228	0.06408	0.0943	0.0646	pCi	0.0352	ARS-031	4/20/2010	ARS1-B10-02555		0.8783	14274-82-9	U	U	
ARS1-B10-02460-04	ARS1-10-00886-001	TLSP22-TWP-09	ASP-A-008	0.43691	TH-230	0.14321	0.0852	0.1526	pCi	0.0269	ARS-031	4/20/2010	ARS1-B10-02460		0.646	14269-63-7			
ARS1-B10-02460-05	ARS1-10-00886-002	TLSP22-TWP-04	ASP-A-008	0.10735	TH-230	0.0703	0.078	0.0715	pCi	0.0259	ARS-031	4/20/2010	ARS1-B10-02460		0.8231	14269-63-7			
ARS1-B10-02460-06	ARS1-10-00886-003	TLSP22-TWP-02	ASP-A-008	0.11867	TH-230	0.07414	0.0696	0.0755	pCi	0.0202	ARS-031	4/20/2010	ARS1-B10-02460		0.7015	14269-63-7			
ARS1-B10-02460-07	ARS1-10-00886-004	TLSP22-TWP-01	ASP-A-008	0.08403	TH-230	0.05845	0.06	0.0593	pCi	0.0175	ARS-031	4/20/2010	ARS1-B10-02460		0.7987	14269-63-7			
ARS1-B10-02460-08	ARS1-10-00886-005	TLSP22-TWP-05	ASP-A-008	0.07658	TH-230	0.06325	0.0813	0.0639	pCi	0.027	ARS-031	4/20/2010	ARS1-B10-02460		0.7574	14269-63-7	U	U	
ARS1-B10-02460-09	ARS1-10-00886-006	TLSP22-TWP-06	ASP-A-008	0.14596	TH-230	0.08478	0.079	0.0866	pCi	0.0242	ARS-031	4/20/2010	ARS1-B10-02460		0.7081	14269-63-7			
ARS1-B10-02460-10	ARS1-10-00915-001	TLSP22-TWP-03	ASP-A-008	0.2034	TH-230	0.08825	0.0719	0.0916	pCi	0.0239	ARS-031	4/21/2010	ARS1-B10-02460		0.8164	14269-63-7			
ARS1-B10-02460-11	ARS1-10-00915-002	TLSP22-TWP-07	ASP-A-008	0.05376	TH-230	0.04842	0.06	0.0489	pCi	0.0175	ARS-031	4/21/2010	ARS1-B10-02460		0.8217	14269-63-7	U	U	
ARS1-B10-02460-12	ARS1-10-00915-003	TLSP22-TWP-08	ASP-A-008	0.07334	TH-230	0.04339	0.0269	0.0443	pCi	0.0045	ARS-031	4/21/2010	ARS1-B10-02460		1.1445	14269-63-7		J	Tracer Recovery exceeds laboratory accpetance criteria.
ARS1-B10-02460-13	ARS1-10-00915-004	TLSP22-TWP-013	ASP-A-008	0.09434	TH-230	0.05835	0.0622	0.0595	pCi	0.0207	ARS-031	4/21/2010	ARS1-B10-02460		0.9994	14269-63-7			
ARS1-B10-02555-04	ARS1-10-01034-001	TLSP22-TWP-11	ASP-A-008	0.07966	TH-230	0.05419	0.0639	0.055	pCi	0.022	ARS-031	4/20/2010	ARS1-B10-02555		1.0136	14269-63-7			
ARS1-B10-02555-05	ARS1-10-01034-002	TLSP22-TWP-03D	ASP-A-008	0.11311	TH-230	0.06145	0.0351	0.0629	pCi	0.0059	ARS-031	4/20/2010	ARS1-B10-02555		0.8783	14269-63-7			
ARS1-B10-02460-04	ARS1-10-00886-001	TLSP22-TWP-09	ASP-A-008	0.04964	TH-232	0.05049	0.0624	0.0508	pCi	0.0155	ARS-031	4/20/2010	ARS1-B10-02460		0.646	7440-29-1	U	U	
ARS1-B10-02460-05	ARS1-10-00886-002	TLSP22-TWP-04	ASP-A-008	0.03251	TH-232	0.04377	0.0709	0.0439	pCi	0.0224	ARS-031	4/20/2010	ARS1-B10-02460		0.8231	7440-29-1	U	U	
ARS1-B10-02460-06	ARS1-10-00886-003	TLSP22-TWP-02	ASP-A-008	-0.0049	TH-232	0.00958	0.0579	0.0096	pCi	0.0144	ARS-031	4/20/2010	ARS1-B10-02460		0.7015	7440-29-1	U	U	
ARS1-B10-02460-07	ARS1-10-00886-004	TLSP22-TWP-01	ASP-A-008	-0.0025	TH-232	0.03146	0.0801	0.0315	pCi	0.0276	ARS-031	4/20/2010	ARS1-B10-02460		0.7987	7440-29-1	U	U	
ARS1-B10-02460-08	ARS1-10-00886-005	TLSP22-TWP-05	ASP-A-008	0.03208	TH-232	0.04763	0.0811	0.0478	pCi	0.0269	ARS-031	4/20/2010	ARS1-B10-02460		0.7574	7440-29-1	U	U	
ARS1-B10-02460-09	ARS1-10-00886-006	TLSP22-TWP-06	ASP-A-008	0.00056	TH-232	0.02653	0.0744	0.0265	pCi	0.0219	ARS-031	4/20/2010	ARS1-B10-02460		0.7081	7440-29-1	U	U	
ARS1-B10-02460-10	ARS1-10-00915-001	TLSP22-TWP-03	ASP-A-008	0.0227	TH-232	0.03129	0.048	0.0314	pCi	0.0119	ARS-031	4/21/2010	ARS1-B10-02460		0.8164	7440-29-1	U	U	
ARS1-B10-02460-11	ARS1-10-00915-002	TLSP22-TWP-07	ASP-A-008	-0.0033	TH-232	0.02301	0.0677	0.023	pCi	0.0214	ARS-031	4/21/2010	ARS1-B10-02460		0.8217	7440-29-1	U	U	
ARS1-B10-02460-12	ARS1-10-00915-003	TLSP22-TWP-08	ASP-A-008	0.01313	TH-232	0.0182	0.0178	0.0183	pCi	0	ARS-031	4/21/2010	ARS1-B10-02460		1.1445	7440-29-1	U	U	
ARS1-B10-02460-13	ARS1-10-00915-004	TLSP22-TWP-013	ASP-A-008	0.00116	TH-232	0.0237	0.0594	0.0237	pCi	0.0193	ARS-031	4/21/2010	ARS1-B10-02460		0.9994	7440-29-1	U	U	
ARS1-B10-02555-04	ARS1-10-01034-001	TLSP22-TWP-11	ASP-A-008	0.06431	TH-232	0.04959	0.0626	0.0502	pCi	0.0213	ARS-031	4/20/2010	ARS1-B10-02555		1.0136	7440-29-1			
ARS1-B10-02555-05	ARS1-10-01034-002	TLSP22-TWP-03D	ASP-A-008	0.02567	TH-232	0.02905	0.0232	0.0292	pCi	0	ARS-031	4/20/2010	ARS1-B10-02555		0.8783	7440-29-1			
ARS1-B10-02488-04	ARS1-10-00886-001	TLSP22-TWP-09	ASP-A-024	2.14233	U-234	0.35181	0.1347	0.4368	pCi	0.0475	ARS-026	4/20/2010	ARS1-B10-02488		0.5438	13966-29-5			
ARS1-B10-02488-05	ARS1-10-00886-002	TLSP22-TWP-04	ASP-A-024	3.19803	U-234	0.38718	0.0889	0.5471	pCi	0.028	ARS-026	4/20/2010	ARS1-B10-02488		0.6248	13966-29-5			
ARS1-B10-02488-06	ARS1-10-00886-003	TLSP22-TWP-02	ASP-A-024	3.24796	U-234	0.33539	0.0871	0.5163	pCi	0.0315	ARS-026	4/20/2010	ARS1-B10-02488		0.8291	13966-29-5			
ARS1-B10-02488-07	ARS1-10-00886-004	TLSP22-TWP-01	ASP-A-024	2.87101	U-234	0.34635	0.0961	0.4903	pCi	0.0335	ARS-026	4/20/2010	ARS1-B10-02488		0.7121	13966-29-5			
ARS1-B10-02488-08	ARS1-10-00886-005	TLSP22-TWP-05	ASP-A-024	0.36965	U-234	0.16693	0.1541	0.1728	pCi	0.0545	ARS-026	4/20/2010	ARS1-B10-02488		0.4821	13966-29-5			
ARS1-B10-02488-09	ARS1-10-00886-006	TLSP22-TWP-06	ASP-A-024	28.1195	U-234	1.10682	0.0912	3.5742	pCi	0.0303	ARS-026	4/20/2010	ARS1-B10-02488		0.6437	13966-29-5			
ARS1-B10-02488-10	ARS1-10-00915-001	TLSP22-TWP-03	ASP-A-024	13.707	U-234	0.71	0.062	1.802	pCi	0.018	ARS-026	4/21/2010	ARS1-B10-02488		0.7974	13966-29-5			
ARS1-B10-02488-11	ARS1-10-00915-002	TLSP22-TWP-07	ASP-A-024	50.672	U-234	1.29	0.023	6.258	pCi	0	ARS-026	4/21/2010	ARS1-B10-02488		0.8793	13966-29-5			
ARS1-B10-02488-12	ARS1-10-00915-003	TLSP22-TWP-08	ASP-A-024	4.207	U-234	0.425	0.03	0.663	pCi	0	ARS-026	4/21/2010	ARS1-B10-02488		0.6821	13966-29-5			
ARS1-B10-02488-13	ARS1-10-00915-004	TLSP22-TWP-013	ASP-A-024	4.523	U-234	0.448	0.112	0.707	pCi	0.04	ARS-026	4/21/2010	ARS1-B10-02488		0.6516	13966-29-5			
ARS1-B10-02556-04	ARS1-10-01034-001	TLSP22-TWP-11	ASP-A-024	70.2383	U-234	1.6391	0.0652	8.6458	pCi	0.0191	ARS-026	4/20/2010	ARS1-B10-02556		0.7532	13966-29-5			
ARS1-B10-02556-05	ARS1-10-01034-002	TLSP22-TWP-03D	ASP-A-024	13.6752	U-234	0.6858	0.0821	1.7894	pCi	0.0289	ARS-026	4/20/2010	ARS1-B10-02556		0.892	13966-29-5			
ARS1-B10-02488-04	ARS1-10-00886-001	TLSP22-TWP-09	ASP-A-024	0.21586	U-235	0.11867	0.046	0.1215	pCi	0	ARS-026	4/20/2010	ARS1-B10-02488		0.5438	15117-96-1			
ARS1-B10-02488-05	ARS1-10-00886-002	TLSP22-TWP-04	ASP-A-024	0.16846	U-235	0.09532	0.038	0.0975	pCi	0	ARS-026	4/20/2010	ARS1-B10-02488		0.6248	15117-96-1			

ABatchSampleID	LabSampleID	Sample ID	AnalysisCode	ACT	Isotope	CU	MDA	TPU	ActUnits	DL	ProcedureNo	CollectionDate	ABatch	ChemRecovery	TracerRecovery	CAS_ID	Lab Qual	Final Qual	Comment
ARS1-B10-02488-06	ARS1-10-00886-003	TLSP22-TWP-02	ASP-A-024	0.0894	U-235	0.0639	0.067	0.0648	pCi	0.0195	ARS-026	4/20/2010	ARS1-B10-02488		0.8291	15117-96-1			
ARS1-B10-02488-07	ARS1-10-00886-004	TLSP22-TWP-01	ASP-A-024	0.11195	U-235	0.07314	0.0337	0.0744	pCi	0	ARS-026	4/20/2010	ARS1-B10-02488		0.7121	15117-96-1			
ARS1-B10-02488-08	ARS1-10-00886-005	TLSP22-TWP-05	ASP-A-024	0.01055	U-235	0.04155	0.1039	0.0416	pCi	0.0258	ARS-026	4/20/2010	ARS1-B10-02488		0.4821	15117-96-1	U	U	
ARS1-B10-02488-09	ARS1-10-00886-006	TLSP22-TWP-06	ASP-A-024	0.84662	U-235	0.20876	0.0852	0.2325	pCi	0.0248	ARS-026	4/20/2010	ARS1-B10-02488		0.6437	15117-96-1			
ARS1-B10-02488-10	ARS1-10-00915-001	TLSP22-TWP-03	ASP-A-024	0.426	U-235	0.136	0.059	0.145	pCi	0.015	ARS-026	4/21/2010	ARS1-B10-02488		0.7974	15117-96-1			
ARS1-B10-02488-11	ARS1-10-00915-002	TLSP22-TWP-07	ASP-A-024	1.991	U-235	0.275	0.027	0.037	pCi	0	ARS-026	4/21/2010	ARS1-B10-02488		0.8793	15117-96-1			
ARS1-B10-02488-12	ARS1-10-00915-003	TLSP22-TWP-08	ASP-A-024	0.243	U-235	0.11	0.035	0.114	pCi	0	ARS-026	4/21/2010	ARS1-B10-02488		0.6821	15117-96-1			
ARS1-B10-02488-13	ARS1-10-00915-004	TLSP22-TWP-013	ASP-A-024	0.165	U-235	0.092	0.036	0.094	pCi	0	ARS-026	4/21/2010	ARS1-B10-02488		0.6516	15117-96-1			
ARS1-B10-02556-04	ARS1-10-01034-001	TLSP22-TWP-11	ASP-A-024	0.9482	U-235	0.2058	0.0621	0.2356	pCi	0.0154	ARS-026	4/20/2010	ARS1-B10-02556		0.7532	15117-96-1			
ARS1-B10-02556-05	ARS1-10-01034-002	TLSP22-TWP-03D	ASP-A-024	0.5146	U-235	0.14306	0.0281	0.156	pCi	0	ARS-026	4/20/2010	ARS1-B10-02556		0.892	15117-96-1			
ARS1-B10-02488-04	ARS1-10-00886-001	TLSP22-TWP-09	ASP-A-024	1.95222	U-238	0.33762	0.1502	0.4119	pCi	0.0553	ARS-026	4/20/2010	ARS1-B10-02488		0.5438	7440-61-1			
ARS1-B10-02488-05	ARS1-10-00886-002	TLSP22-TWP-04	ASP-A-024	3.84153	U-238	0.42453	0.105	0.6291	pCi	0.0361	ARS-026	4/20/2010	ARS1-B10-02488		0.6248	7440-61-1			
ARS1-B10-02488-06	ARS1-10-00886-003	TLSP22-TWP-02	ASP-A-024	3.18658	U-238	0.33402	0.1129	0.5098	pCi	0.0444	ARS-026	4/20/2010	ARS1-B10-02488		0.8291	7440-61-1			
ARS1-B10-02488-07	ARS1-10-00886-004	TLSP22-TWP-01	ASP-A-024	2.43305	U-238	0.31731	0.0695	0.4326	pCi	0.0202	ARS-026	4/20/2010	ARS1-B10-02488		0.7121	7440-61-1			
ARS1-B10-02488-08	ARS1-10-00886-005	TLSP22-TWP-05	ASP-A-024	0.37549	U-238	0.17098	0.1668	0.1769	pCi	0.0609	ARS-026	4/20/2010	ARS1-B10-02488		0.4821	7440-61-1			
ARS1-B10-02488-09	ARS1-10-00886-006	TLSP22-TWP-06	ASP-A-024	28.2356	U-238	1.10814	0.0982	3.588	pCi	0.0338	ARS-026	4/20/2010	ARS1-B10-02488		0.6437	7440-61-1			
ARS1-B10-02488-10	ARS1-10-00915-001	TLSP22-TWP-03	ASP-A-024	13.001	U-238	0.69	0.062	1.717	pCi	0.018	ARS-026	4/21/2010	ARS1-B10-02488		0.7974	7440-61-1			
ARS1-B10-02488-11	ARS1-10-00915-002	TLSP22-TWP-07	ASP-A-024	51.794	U-238	1.303	0.063	6.394	pCi	0.02	ARS-026	4/21/2010	ARS1-B10-02488		0.8793	7440-61-1			
ARS1-B10-02488-12	ARS1-10-00915-003	TLSP22-TWP-08	ASP-A-024	4.104	U-238	0.421	0.073	0.65	pCi	0.021	ARS-026	4/21/2010	ARS1-B10-02488		0.6821	7440-61-1			
ARS1-B10-02488-13	ARS1-10-00915-004	TLSP22-TWP-013	ASP-A-024	4.188	U-238	0.429	0.092	0.664	pCi	0.03	ARS-026	4/21/2010	ARS1-B10-02488		0.6516	7440-61-1			
ARS1-B10-02556-04	ARS1-10-01034-001	TLSP22-TWP-11	ASP-A-024	20.2591	U-238	0.8798	0.0729	2.6018	pCi	0.023	ARS-026	4/20/2010	ARS1-B10-02556		0.7532	7440-61-1			
ARS1-B10-02556-05	ARS1-10-01034-002	TLSP22-TWP-03D	ASP-A-024	13.6786	U-238	0.6855	0.0915	1.7897	pCi	0.0337	ARS-026	4/20/2010	ARS1-B10-02556		0.892	7440-61-1			

Town of Tonawanda Landfill (FUSRAP)

Groundwater, Surface Water and Sediment Sampling - July 2009
Laboratory Radiological Data Qualification -June 2010
Data Reviewer: [redacted] – Chemist - (LRB-TD-EH)

Laboratory Radiological Data Qualification Summary

Twenty two (11-unfiltered and 11-field filtered) groundwater samples, ten (10) sediment samples and ten (10) surface water samples collected by USACE-Buffalo District personnel in support of US Army Corps of Engineer (USACE) remediation investigation addendum effort at the Town of Tonawanda Landfill FUSRAP Project. Samples were submitted to Eberline Analytical/Oakridge Laboratory (Oak Ridge, TN) analyzed for:

Sediment Sample Analysis:
Isotopic Thorium -228, -230 and -232 - Alpha Spectroscopy – EML Th-01 Modified
Isotopic Uranium – 234, -235 and –238 - Alpha Spectroscopy – EML U-02 Modified
Radium -226 – Gamma Spectroscopy - LANL ER-130 Modified
Radium -228 – Gamma Spectroscopy - LANL ER-130 Modified
Total Uranium -Kinetic Phosphorescence Analyzer - ASTM D5174 Modified

Water Sample Analysis:
Isotopic Thorium -228, -230 and -232 - Alpha Spectroscopy – EML Th-01 Modified
Isotopic Uranium – 234, -235 and –238 - Alpha Spectroscopy – EML U-02 Modified
Radium -226 – Lucas Cell/Alpha Scintillation - EPA 903.1
Radium -228 – Gas Proportional Counting - EPA 904.0 Modified
Total Uranium -Kinetic Phosphorescence Analyzer - ASTM D5174 Modified

A data qualification was performed to assess the quality of the soil and water sampling results. These assessments was to demonstrate whether environmental data generated are appropriate for their intended purpose, are technically defensible, and are of known and acceptable precision and accuracy.

Analytical data generated by the offsite lab has undergone a process of data verification and review. The analytical data was qualified by utilizing the guidance presented in MARLAP (NUREG-1576) guidance where practicable and in USACE Kansas City and St. Louis District Radionuclide Data Quality Evaluation Guidance for Alpha and Gamma Spectroscopy (USACE, 2002).

The overall quality of the sampling information meets or exceeds the established project objectives. Data as presented, has been qualified as usable (92.5%). One (1) water sample analyzed for Radium-226 was rejected "R" due to method blank contamination (batch method blank greater than primary finding). Six (6) surface water samples analyzed for Total-U (KPA) were rejected "R" due to a uncorrected dilution error.

Data produced for this project demonstrates that it can withstand scientific scrutiny, is appropriate for its intended purpose and is of known and acceptable precision, and accuracy. Data integrity has been documented through proper implementation of Quality Assurance and Quality Control measures.

Worksheets for the data qualification are provided.

Final qualifiers are as follows:

J -Estimated values are qualified.
R -Rejected values qualified.
U -Non-detect parameters are qualified.

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08007-02	09-08007	Gamma	RA-226	1	MBL	BLANK	pCi/g	0.05078	N		0.08577	0.0446	0.0446	0							LANL ER-130 Modified				n	n				MBL	MB<MDA
09-08007-02	09-08007	Gamma	RA-228	1	MBL	BLANK	pCi/g	-0.0194	N		0.1334	0.07579	0.07579	0							LANL ER-130 Modified				n	Y				MBL	MB<MDA
09-08007-01	09-08007	Gamma	CO-60	1	LCS	LCS	pCi/g	245.7	Y		1.79	13.020273	13.02	0	246.1	99.854	OK				LANL ER-130 Modified	6.77	0.0		Y	n	99.9		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	Gamma	CS-137	1	LCS	LCS	pCi/g	158.7	Y		1.5	13.860107	13.86	0	152.6	104.02	OK				LANL ER-130 Modified	4.42	0.4		Y	n	104.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	Gamma	RA-226	1	DUP	SW/SD-01	pCi/g	1.369	Y		0.1733	0.2353005	0.2353	0				OK			LANL ER-130 Modified		0.1		Y	n		2.7		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	Gamma	RA-228	1	DUP	SW/SD-01	pCi/g	1.019	Y		0.6179	0.3601002	0.3601	0				OK			LANL ER-130 Modified		0.3		Y	n		15.8		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	Gamma	RA-226	1	DO	SW/SD-01	pCi/g	1.332	Y		0.1786	0.2261005	0.2261	0							LANL ER-130 Modified				Y	n				DO	
09-08007-04	09-08007	Gamma	RA-228	1	DO	SW/SD-01	pCi/g	0.8698	Y		0.4139	0.3002001	0.3002	0							LANL ER-130 Modified				Y	n				DO	
09-08007-13	09-08007	Gamma	RA-226	1	TRG	SW/SD-02	pCi/g	1.491	Y		0.2262	0.2840005	0.284	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-13	09-08007	Gamma	RA-228	1	TRG	SW/SD-02	pCi/g	0.8895	Y		0.4436	0.3820001	0.382	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-14	09-08007	Gamma	RA-226	1	TRG	SW/SD-04	pCi/g	1.162	Y		0.1609	0.1689005	0.1689	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-14	09-08007	Gamma	RA-228	1	TRG	SW/SD-04	pCi/g	1.332	Y		0.3112	0.2405004	0.2405	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-12	09-08007	Gamma	RA-226	1	TRG	SW/SD-05	pCi/g	1.272	Y		0.51	0.4972002	0.4972	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-12	09-08007	Gamma	RA-228	1	TRG	SW/SD-05	pCi/g	1.59	Y		1.082	0.8442002	0.8442	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-10	09-08007	Gamma	RA-226	1	TRG	SW/SD-06	pCi/g	1.111	Y		0.1846	0.2011004	0.2011	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-10	09-08007	Gamma	RA-228	1	TRG	SW/SD-06	pCi/g	1.201	Y		0.3803	0.2599003	0.2599	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-11	09-08007	Gamma	RA-226	1	TRG	SW/SD-07	pCi/g	0.6703	Y		0.1404	0.1304002	0.1304	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-11	09-08007	Gamma	RA-228	1	TRG	SW/SD-07	pCi/g	0.9673	Y		0.2791	0.2381002	0.2381	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-06	09-08007	Gamma	RA-226	1	TRG	SW/SD-08	pCi/g	1.185	Y		0.2632	0.2757003	0.2757	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-06	09-08007	Gamma	RA-228	1	TRG	SW/SD-08	pCi/g	1.129	Y		0.8733	0.4908002	0.4908	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-08	09-08007	Gamma	RA-226	1	TRG	SW/SD-08-D	pCi/g	1.611	Y		0.7872	0.7312002	0.7312	0							LANL ER-130 Modified		0.5		Y	n		30.5		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	Gamma	RA-228	1	TRG	SW/SD-08-D	pCi/g	1.821	Y		1.566	0.9387002	0.9387	0							LANL ER-130 Modified		0.7		Y	n		46.9		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-09	09-08007	Gamma	RA-226	1	TRG	SW/SD-09	pCi/g	1.194	Y		0.1876	0.2255004	0.2255	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-09	09-08007	Gamma	RA-228	1	TRG	SW/SD-09	pCi/g	1.363	Y		0.3096	0.3451003	0.3451	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-05	09-08007	Gamma	RA-226	1	TRG	SW/SD-10	pCi/g	1.44	Y		0.418	0.4176003	0.4176	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-05	09-08007	Gamma	RA-228	1	TRG	SW/SD-10	pCi/g	1.44	Y		0.91	0.6711002	0.6711	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-07	09-08007	Gamma	RA-226	1	TRG	SW/SD-11	pCi/g	1.112	Y		0.2492	0.2768003	0.2768	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-07	09-08007	Gamma	RA-228	1	TRG	SW/SD-11	pCi/g	1.261	Y		0.5043	0.3430003	0.343	0							LANL ER-130 Modified				Y	n				TRG	
09-08007-02	09-08007	KPA_SOL	TOTAL U	1	MBL	BLANK	ug/g	0	N		0.1	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08007-01	09-08007	KPA_SOL	TOTAL U	1	LCS	LCS	ug/g	111.324	Y		0.098232	7.9766387	3.58671	0.06	100	111.32	OK		OK		ASTM D5174 Modified	2	1.4		Y	n	111.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	KPA_SOL	TOTAL U	1	DUP	SW/SD-01	ug/g	14.9712	Y		0.048356	0.9747886	0.17931	0.06				OK	OK		ASTM D5174 Modified		0.4		Y	n		11.6		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	KPA_SOL	TOTAL U	1	DO	SW/SD-01	ug/g	15.5685	Y		0.049101	1.0136991	0.18656	0.06					OK		ASTM D5174 Modified				Y	n				DO	
09-08007-13	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-02	ug/g	13.3242	Y		0.049583	0.8669494	0.15628	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-14	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-04	ug/g	1.49126	Y		0.049823	0.0975156	0.02001	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-12	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-05	ug/g	44.4255	Y		0.048384	3.1954579	1.45842	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-10	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-06	ug/g	3.86798	Y		0.048119	0.2521899	0.04815	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-11	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-07	ug/g	4.18105	Y		0.048885	0.2725966	0.05202	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-06	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-08	ug/g	9.69623	Y		0.049628	0.6326581	0.12314	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-08	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-08-D	ug/g	9.60483	Y		0.049756	0.6254319	0.11532	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-09	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-09	ug/g	2.3139	Y		0.047605	0.1513961	0.03147	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-05	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-10	ug/g	2.06424	Y		0.04649	0.1351223	0.02837	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-07	09-08007	KPA_SOL	TOTAL U	1	TRG	SW/SD-11	ug/g	3.7813	Y		0.049746	0.2473607	0.0512	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08007-02	09-08007	ThISO	TH-228	1	MBL	BLANK	pCi/g	0.01023	N		0.1259	0.04358	0.04358	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08007-02	09-08007	ThISO	TH-230	1	MBL	BLANK	pCi/g	0.1805	Y		0.1699	0.1394007	0.1394	0					OK	INV	EML Th-01 Modified		1.29		Y	n				MBL	MB>MDA / Z-score(normalized diff) < 2
09-08007-02	09-08007	ThISO	TH-232	1	MBL	BLANK	pCi/g	-0.0142	N		0.1365	0.01452	0.01452	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08007-01	09-08007	ThISO	TH-228	1	LCS	LCS	pCi/g	4.75	Y		0.1346	0.9174692	0.9174	0	4.819	98.572	OK		OK		EML Th-01 Modified	0.173	0.1		Y	n	98.6		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	ThISO	TH-230	1	LCS	LCS	pCi/g	5.109	Y		0.07811	0.9746753	0.9746	0	5.365	95.221	OK		OK		EML Th-01 Modified	0.145	0.3		Y	n	95.2		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	ThISO	TH-232	1	LCS	LCS	pCi/g	4.465	Y		0.08673	0.8704644	0.8704	0	4.819	92.658	OK		OK		EML Th-01 Modified	0.173	0.4		Y	n	92.7		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	ThISO	TH-228	1	DUP	SW/SD-01	pCi/g	1.116	Y		0.1444	0.3975088	0.3975	0				OK	OK		EML Th-01 Modified		0.1		Y	n		6.0		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	ThISO	TH-230	1	DUP	SW/SD-01	pCi/g	2.238	Y		0.1353	0.6616213	0.6616	0				OK	OK		EML Th-01 Modified		0.0		Y	n		0.2		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	ThISO	TH-232	1	DUP	SW/SD-01	pCi/g	0.7185	Y		0.09546	0.292405	0.2924	0				INV	OK		EML Th-01 Modified		0.6		Y	n		34.6		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	ThISO	TH-228	1	DO	SW/SD-01	pCi/g	1.051	Y		0.1801	0.3801082	0.3801	0					OK		EML Th-01 Modified				Y	n				DO	
09-08007-04	09-08007	ThISO	TH-230	1	DO	SW/SD-01	pCi/g	2.243	Y		0.1438	0.6547216	0.6547	0					OK		EML Th-01 Modified		3.1	n	Y	n				DO	MB x5 < Sample finding, Z-Score (normalized Diff) > 1.98
09-08007-04	09-08007	ThISO	TH-232	1	DO	SW/SD-01	pCi/g	1.019	Y		0.1112	0.366508	0.3665	0					OK		EML Th-01 Modified				Y	n				DO	
09-08007-13	09-08007	ThISO	TH-228	1	TRG	SW/SD-02	pCi/g	0.6427	Y		0.1262	0.2387049	0.2387	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-13	09-08007	ThISO	TH-230	1	TRG	SW/SD-02	pCi/g	0.4853	Y	J	0.09008	0.1972034	0.1972	0					OK		EML Th-01 Modified		1.3	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-13	09-08007	ThISO	TH-232	1	TRG	SW/SD-02	pCi/g	0.4746	Y		0.06899	0.1935033	0.1935	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-14	09-08007	ThISO	TH-228	1	TRG	SW/SD-04	pCi/g	0.8225	Y		0.08251	0.2645072	0.2645	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-14	09-08007	ThISO	TH-230	1	TRG	SW/SD-04	pCi/g	0.7844	Y	J	0.08832	0.2552068	0.2552	0					OK		EML Th-01 Modified		2.1	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-14	09-08007	ThISO	TH-232	1	TRG	SW/SD-04	pCi/g	0.8396	Y		0.1025	0.2680074	0.268	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-12	09-08007	ThISO	TH-228	1	TRG	SW/SD-05	pCi/g	0.7099	Y		0.1746	0.2757051	0.2757	0					OK		EML Th-01 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08007-12	09-08007	ThISO	TH-230	1	TRG	SW/SD-05	pCi/g	1.081	Y	J	0.1604	0.3595091	0.3595	0					OK		EML Th-01 Modified		2.3	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-12	09-08007	ThISO	TH-232	1	TRG	SW/SD-05	pCi/g	0.5145	Y		0.1235	0.2212034	0.2212	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-10	09-08007	ThISO	TH-228	1	TRG	SW/SD-06	pCi/g	0.5884	Y		0.09542	0.2099046	0.2099	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-10	09-08007	ThISO	TH-230	1	TRG	SW/SD-06	pCi/g	0.5137	Y	J	0.05969	0.1901039	0.1901	0					OK		EML Th-01 Modified		1.4	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-10	09-08007	ThISO	TH-232	1	TRG	SW/SD-06	pCi/g	0.4849	Y		0.0698	0.1836036	0.1836	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-11	09-08007	ThISO	TH-228	1	TRG	SW/SD-07	pCi/g	0.8231	Y		0.09927	0.270907	0.2709	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-11	09-08007	ThISO	TH-230	1	TRG	SW/SD-07	pCi/g	1.143	Y		0.08566	0.3375109	0.3375	0					OK		EML Th-01 Modified		2.6	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 1.98
09-08007-11	09-08007	ThISO	TH-232	1	TRG	SW/SD-07	pCi/g	0.7866	Y		0.0855	0.2609067	0.2609	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-06	09-08007	ThISO	TH-228	1	TRG	SW/SD-08	pCi/g	0.981	Y		0.09752	0.340008	0.34	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-06	09-08007	ThISO	TH-230	1	TRG	SW/SD-08	pCi/g	1.02	Y	J	0.09764	0.3477084	0.3477	0					OK		EML Th-01 Modified		2.2	n	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-06	09-08007	ThISO	TH-232	1	TRG	SW/SD-08	pCi/g	0.8628	Y		0.04872	0.3092068	0.3092	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-08	09-08007	ThISO	TH-228	1	TRG	SW/SD-08-D	pCi/g	0.9181	Y		0.09643	0.3096077	0.3096	0					OK		EML Th-01 Modified		0.1		Y	n		6.6		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	ThISO	TH-230	1	TRG	SW/SD-08-D	pCi/g	0.8376	Y	J	0.1048	0.2898068	0.2898	0					OK		EML Th-01 Modified	2.0	0.4	Y	Y	n		19.6		TRG	MB x5 < Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-08	09-08007	ThISO	TH-232	1	TRG	SW/SD-08-D	pCi/g	0.695	Y		0.09637	0.2557053	0.2557	0					OK		EML Th-01 Modified		0.4		Y	n		21.5		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-09	09-08007	ThISO	TH-228	1	TRG	SW/SD-09	pCi/g	0.6252	Y		0.1073	0.2176051	0.2176	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-09	09-08007	ThISO	TH-230	1	TRG	SW/SD-09	pCi/g	0.9406	Y	J	0.05665	0.2832088	0.2832	0					OK		EML Th-01 Modified		2.4	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-09	09-08007	ThISO	TH-232	1	TRG	SW/SD-09	pCi/g	0.5926	Y		0.07371	0.2070048	0.207	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-05	09-08007	ThISO	TH-228	1	TRG	SW/SD-10	pCi/g	1.018	Y		0.124	0.3304088	0.3304	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-05	09-08007	ThISO	TH-230	1	TRG	SW/SD-10	pCi/g	0.7122	Y	J	0.1298	0.2597055	0.2597	0					OK		EML Th-01 Modified		1.8	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-05	09-08007	ThISO	TH-232	1	TRG	SW/SD-10	pCi/g	0.7485	Y		0.04316	0.2649059	0.2649	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-07	09-08007	ThISO	TH-228	1	TRG	SW/SD-11	pCi/g	0.8764	Y		0.1281	0.2805077	0.2805	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-07	09-08007	ThISO	TH-230	1	TRG	SW/SD-11	pCi/g	0.8979	Y	J	0.0827	0.2813081	0.2813	0					OK		EML Th-01 Modified		2.3	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08007-07	09-08007	ThISO	TH-232	1	TRG	SW/SD-11	pCi/g	0.6657	Y		0.1113	0.2320054	0.232	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08007-02	09-08007	UUISO	U-234	1	MBL	BLANK	pCi/g	0.0506	N		0.07494	0.0561704	0.05617	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08007-02	09-08007	UUISO	U-235	1	MBL	BLANK	pCi/g	0	N		0.04621	0.0035201	0.00352	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08007-02	09-08007	UUISO	U-238	1	MBL	BLANK	pCi/g	0.06648	Y		0.06369	0.0624706	0.06247	0					OK	INV	EML U-02 Modified		1.06		Y	n				MBL	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	UUISO	U-234	1	LCS	LCS	pCi/g	8.696	Y		0.1085	1.5644288	1.564	0	8.281	105.01	OK		OK		EML U-02 Modified	0.298	0.3		Y	n	105.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-01	09-08007	UUISO	U-235	1	LCS	LCS	pCi/g	0.8654	Y		0.06013	0.3079216	0.3079	0					OK		EML U-02 Modified				Y					LCS	
09-08007-01	09-08007	UUISO	U-238	1	LCS	LCS	pCi/g	8.97	Y		0.08287	1.6054446	1.605	0	8.072	111.12	OK		OK		EML U-02 Modified	0.291	0.6		Y	n	111.1		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	UUISO	U-234	1	DUP	SW/SD-01	pCi/g	8.399	Y		0.05432	1.5594013	1.559	0				OK	OK		EML U-02 Modified		0.5		Y	n		13.8		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	UUISO	U-235	1	DUP	SW/SD-01	pCi/g	0.857	Y		0.1341	0.3226202	0.3226	0				INV	OK		EML U-02 Modified		0.6		Y	n		32.8		DUP	Z-Score (normalized dif.) < 1.98
09-08007-03	09-08007	UUISO	U-238	1	DUP	SW/SD-01	pCi/g	7.641	Y		0.09235	1.4373604	1.437	0				OK	OK		EML U-02 Modified		0.1		Y	n		3.6		DUP	Z-Score (normalized dif.) < 1.98
09-08007-04	09-08007	UUISO	U-234	1	DO	SW/SD-01	pCi/g	7.314	Y		0.1573	1.3613486	1.361	0					OK		EML U-02 Modified				Y	n				DO	
09-08007-04	09-08007	UUISO	U-235	1	DO	SW/SD-01	pCi/g	0.6152	Y		0.1061	0.2571131	0.2571	0					OK		EML U-02 Modified				Y	n				DO	
09-08007-04	09-08007	UUISO	U-238	1	DO	SW/SD-01	pCi/g	7.918	Y		0.08565	1.4553822	1.455	0					OK		EML U-02 Modified		5.4	n	Y	n				DO	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-13	09-08007	UUISO	U-234	1	TRG	SW/SD-02	pCi/g	10.43	Y		0.1401	1.8875113	1.887	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-13	09-08007	UUISO	U-235	1	TRG	SW/SD-02	pCi/g	1.107	Y		0.1143	0.374929	0.3749	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-13	09-08007	UUISO	U-238	1	TRG	SW/SD-02	pCi/g	11.27	Y		0.1395	2.019558	2.019	0					OK		EML U-02 Modified		5.5	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-14	09-08007	UUISO	U-234	1	TRG	SW/SD-04	pCi/g	0.5738	Y		0.087	0.1898154	0.1898	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-14	09-08007	UUISO	U-235	1	TRG	SW/SD-04	pCi/g	0.07409	Y		0.07098	0.0696207	0.06962	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-14	09-08007	UUISO	U-238	1	TRG	SW/SD-04	pCi/g	0.6314	Y		0.03355	0.1990178	0.199	0					OK		EML U-02 Modified		2.7	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-12	09-08007	UUISO	U-234	1	TRG	SW/SD-05	pCi/g	15.27	Y		0.1066	2.5028265	2.502	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-12	09-08007	UUISO	U-235	1	TRG	SW/SD-05	pCi/g	1.387	Y		0.05446	0.3935434	0.3935	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-12	09-08007	UUISO	U-238	1	TRG	SW/SD-05	pCi/g	14.11	Y		0.08793	2.3267591	2.326	0					OK		EML U-02 Modified		6.0	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-10	09-08007	UUISO	U-234	1	TRG	SW/SD-06	pCi/g	1.539	Y		0.07212	0.3609582	0.3609	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-10	09-08007	UUISO	U-235	1	TRG	SW/SD-06	pCi/g	0.1421	Y		0.08897	0.1008018	0.1008	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-10	09-08007	UUISO	U-238	1	TRG	SW/SD-06	pCi/g	1.525	Y		0.09268	0.3588575	0.3588	0					OK		EML U-02 Modified		4.0	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-11	09-08007	UUISO	U-234	1	TRG	SW/SD-07	pCi/g	2.308	Y		0.06564	0.467701	0.4676	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-11	09-08007	UUISO	U-235	1	TRG	SW/SD-07	pCi/g	0.2539	Y		0.04048	0.1283045	0.1283	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-11	09-08007	UUISO	U-238	1	TRG	SW/SD-07	pCi/g	2.327	Y		0.03267	0.4697023	0.4696	0					OK		EML U-02 Modified		4.8	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08007-06	09-08007	UUISO	U-234	1	TRG	SW/SD-08	pCi/g	4.753	Y		0.08956	0.8535348	0.8533	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-06	09-08007	UUISO	U-235	1	TRG	SW/SD-08	pCi/g	0.329	Y		0.1018	0.1585061	0.1585	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-06	09-08007	UUISO	U-238	1	TRG	SW/SD-08	pCi/g	4.426	Y		0.06305	0.804416	0.8042	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-08	09-08007	UUISO	U-234	1	TRG	SW/SD-08-D	pCi/g	3.888	Y		0.08773	0.7138879	0.7137	0					OK		EML U-02 Modified		0.8		Y	n		20.0		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	UUISO	U-235	1	TRG	SW/SD-08-D	pCi/g	0.3761	Y		0.1012	0.1642076	0.1642	0					OK		EML U-02 Modified		0.2		Y	n		13.4		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08007-08	09-08007	UUISO	U-238	1	TRG	SW/SD-08-D	pCi/g	3.703	Y		0.06768	0.6854775	0.6853	0					OK		EML U-02 Modified	5.3	0.7	n	Y	n		17.8		TRG	Field duplicate.MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 1.98
09-08007-09	09-08007	UUISO	U-234	1	TRG	SW/SD-09	pCi/g	1.201	Y		0.09784	0.3217398	0.3217	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-09	09-08007	UUISO	U-235	1	TRG	SW/SD-09	pCi/g	0.04905	N	U	0.09998	0.0649003	0.0649	0					OK		EML U-02 Modified				n	Y				TRG	
09-08007-09	09-08007	UUISO	U-238	1	TRG	SW/SD-09	pCi/g	0.9948	Y		0.06888	0.2840309	0.284	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-05	09-08007	UUISO	U-234	1	TRG	SW/SD-10	pCi/g	0.9546	Y		0.1354	0.2766292	0.2766	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-05	09-08007	UUISO	U-235	1	TRG	SW/SD-10	pCi/g	0.05927	N	U	0.1169	0.0729504	0.07295	0					OK		EML U-02 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08007-05	09-08007	UUISO	U-238	1	TRG	SW/SD-10	pCi/g	1.071	Y		0.09432	0.2943346	0.2943	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-07	09-08007	UUISO	U-234	1	TRG	SW/SD-11	pCi/g	0.8336	Y		0.07705	0.2498247	0.2498	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-07	09-08007	UUISO	U-235	1	TRG	SW/SD-11	pCi/g	0.1197	Y		0.08113	0.0945813	0.09458	0					OK		EML U-02 Modified				Y	n				TRG	
09-08007-07	09-08007	UUISO	U-238	1	TRG	SW/SD-11	pCi/g	0.955	Y		0.08534	0.2717298	0.2717	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-02	09-08008	KPA_LIQ	TOTAL U	1	MBL	BLANK	ug/l	0	N		1.059167	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08008-01	09-08008	KPA_LIQ	TOTAL U	1	LCS	LCS	ug/l	8.06897	Y		1.059167	0.5264511	0.10231	0.06	8	100.86	OK		OK		ASTM D5174 Modified	0.16	0.1		Y	n	100.9		N	LCS	Z-Score (normalized dif.) < 1.98
09-08008-0H	09-08008	KPA_LIQ	TOTAL U	1	LCSH	LCS-H	ug/l	204.673	Y		1.059167	14.597186	6.44145	0.06	200	102.34	OK		OK				0.3		Y	n	102.3		Y	LCSH	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	KPA_LIQ	TOTAL U	1	DUP	BM-18	ug/l	45.6185	Y		1.059167	2.9964472	0.67434	0.06				OK	OK		ASTM D5174 Modified		0.4		Y	n		3.3		DUP	Z-Score (normalized dif.) < 1.98
09-08008-04	09-08008	KPA_LIQ	TOTAL U	1	DO	BM-18	ug/l	47.1339	Y	R	1.059167	3.0942015	0.68877	0.06					OK		ASTM D5174 Modified				Y	n				DO	Laboratory dilution issue.
09-08008-05	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-17	ug/l	20.1569	Y		1.059167	1.4479315	0.6575	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-08	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-4	ug/l	27.9779	Y	R	1.059167	2.0062506	0.9049	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-13	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-6	ug/l	30.7493	Y	R	1.059167	2.0236329	0.47142	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-14	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-6-F	ug/l	15.5967	Y	R	1.059167	1.02521	0.23382	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-09	09-08008	KPA_LIQ	TOTAL U	1	TRG	BM-7	ug/l	1.46621	Y		1.059167	0.0959149	0.01986	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-11	09-08008	KPA_LIQ	TOTAL U	1	TRG	L-3	ug/l	7.37481	Y		1.059167	0.4819433	0.09745	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-10	09-08008	KPA_LIQ	TOTAL U	1	TRG	L-3-F	ug/l	6.60699	Y		1.059167	0.4330265	0.09334	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-12	09-08008	KPA_LIQ	TOTAL U	1	TRG	L-4-F	ug/l	0.4039	N	U	1.059167	0.0268224	0.00716	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08008-07	09-08008	KPA_LIQ	TOTAL U	1	TRG	SW/SD-01	ug/l	144.374	Y		1.059167	10.36817	4.70351	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08008-06	09-08008	KPA_LIQ	TOTAL U	1	TRG	SW/SD-10	ug/l	49.1686	Y	R	1.059167	3.2260613	0.71077	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08008-02	09-08008	Ra226LC	RA-226	1	MBL	BLANK	pCi/l	0.31447	Y		0.150415	0.1235445	0.11948	0.1					OK	INV	EPA 903.1		2.55		Y	n				MBL	Z-Score > 1.98, potential MB bias
09-08008-01	09-08008	Ra226LC	RA-226	1	LCS	LCS	pCi/l	9.32222	Y		0.162671	1.0266144	0.43	0.1	10.18	91.534	OK		OK		EPA 903.1	0.468	0.8		Y	n	91.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	Ra226LC	RA-226	1	DUP	BM-17	pCi/l	1.06049	Y		0.157503	0.2642977	0.24209	0.1				INV	OK		EPA 903.1		1.3		Y	n		109.1		DUP	Z-Score (normalized dif.) < 1.98
09-08008-05	09-08008	Ra226LC	RA-226	1	DO	BM-17	pCi/l	1.61616	Y		0.251811	0.3542537	0.31524	0.1					OK		EPA 903.1		3.5	n	Y	n				DO	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08008-04	09-08008	Ra226LC	RA-226	1	TRG	BM-18	pCi/l	0.99443	Y	J	0.348302	0.3015827	0.28472	0.1					OK		EPA 903.1		2.1	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-08	09-08008	Ra226LC	RA-226	1	TRG	BM-4	pCi/l	0.31209	Y	R	0.305975	0.2037667	0.20136	0.1					OK		EPA 903.1		0.0	Y	Y	n				TRG	MB > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in MB
09-08008-13	09-08008	Ra226LC	RA-226	1	TRG	BM-6	pCi/l	0.95213	Y	J	0.441343	0.3596182	0.34679	0.1					OK		EPA 903.1		1.7	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-14	09-08008	Ra226LC	RA-226	1	TRG	BM-6-F	pCi/l	0.53406	Y	J	0.232933	0.2096213	0.2027	0.1					OK		EPA 903.1		0.9	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-09	09-08008	Ra226LC	RA-226	1	TRG	BM-7	pCi/l	1.08511	Y	J	0.396195	0.3343364	0.31624	0.1					OK		EPA 903.1		2.2	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-11	09-08008	Ra226LC	RA-226	1	TRG	L-3	pCi/l	1.35219	Y		0.379494	0.3690342	0.34337	0.1					OK		EPA 903.1		2.7	Y	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08008-10	09-08008	Ra226LC	RA-226	1	TRG	L-3-F	pCi/l	1.18152	Y	J	0.691351	0.5032837	0.48922	0.1					INV		EPA 903.1		1.7	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-12	09-08008	Ra226LC	RA-226	1	TRG	L-4-F	pCi/l	0.52342	Y	J	0.228064	0.1955676	0.18843	0.1					OK		EPA 903.1		0.9	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-07	09-08008	Ra226LC	RA-226	1	TRG	SW/SD-01	pCi/l	0.60819	Y	J	0.204751	0.1998723	0.19039	0.1					OK		EPA 903.1		1.3	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08008-06	09-08008	Ra226LC	RA-226	1	TRG	SW/SD-10	pCi/l	1.90281	Y		0.435064	0.4729611	0.433	0.1					OK		EPA 903.1		3.2	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08008-02	09-08008	Ra228	RA-228	1	MBL	BLANK	pCi/l	0.65505	N		0.811523	0.4146365	0.41413	0.03					OK	OK	EPA 904.0 Modified				n	n				MBL	MB<MDA
09-08008-01	09-08008	Ra228	RA-228	1	LCS	LCS	pCi/l	16.7733	Y		0.859697	1.0778784	0.94144	0.03	18.54	90.474	OK		OK		EPA 904.0 Modified	0.946	1.2		Y	n	90.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	Ra228	RA-228	1	DUP	SW/SD-10	pCi/l	0.79727	N		0.984158	0.5053031	0.50469	0.03				INV	OK		EPA 904.0 Modified		0.4		n	n		5.8		DUP	Z-Score (normalized dif.) < 1.98
09-08008-06	09-08008	Ra228	RA-228	1	DO	SW/SD-10	pCi/l	0.53644	N	U	1.042212	0.5161591	0.51589	0.03					OK		EPA 904.0 Modified				n	n				DO	
09-08008-05	09-08008	Ra228	RA-228	1	TRG	BM-17	pCi/l	0.9427	Y		0.83725	0.4411757	0.44019	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-04	09-08008	Ra228	RA-228	1	TRG	BM-18	pCi/l	0.75215	N	U	0.870672	0.4483087	0.44769	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-08	09-08008	Ra228	RA-228	1	TRG	BM-4	pCi/l	0.90544	N	U	0.917793	0.4785611	0.47772	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-13	09-08008	Ra228	RA-228	1	TRG	BM-6	pCi/l	0.96393	N	U	1.195533	0.6117601	0.61102	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-14	09-08008	Ra228	RA-228	1	TRG	BM-6-F	pCi/l	2.10056	Y		0.903803	0.5322545	0.52818	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-09	09-08008	Ra228	RA-228	1	TRG	BM-7	pCi/l	0.33863	N	U	0.732584	0.3609858	0.36083	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08008-11	09-08008	Ra228	RA-228	1	TRG	L-3	pCi/l	0.90738	N	U	1.341275	0.6711682	0.67057	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-10	09-08008	Ra228	RA-228	1	TRG	L-3-F	pCi/l	0.79123	Y		0.74761	0.3956218	0.39485	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-12	09-08008	Ra228	RA-228	1	TRG	L-4-F	pCi/l	0.98525	N	U	1.136699	0.5822859	0.58147	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08008-07	09-08008	Ra228	RA-228	1	TRG	SW/SD-01	pCi/l	1.02599	Y		0.789717	0.4267883	0.42558	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08008-02	09-08008	ThISO	TH-227	1	MBL	BLANK	pCi/l	0.01947	N		0.1564	0.06295	0.06295	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08008-02	09-08008	ThISO	TH-228	1	MBL	BLANK	pCi/l	-0.0089	N		0.1424	0.03784	0.03784	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08008-02	09-08008	ThISO	TH-230	1	MBL	BLANK	pCi/l	0.1251	N		0.1937	0.1176004	0.1176	0					OK	INV	EML Th-01 Modified				n	n				MBL	MB<MDA
09-08008-02	09-08008	ThISO	TH-232	1	MBL	BLANK	pCi/l	0.03077	N		0.07781	0.0483101	0.04831	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08008-01	09-08008	ThISO	TH-228	1	LCS	LCS	pCi/l	4.553	Y		0.1004	0.8433691	0.8433	0	4.791	95.036	OK		OK		EML Th-01 Modified	0.172	0.3		Y	n	95.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-01	09-08008	ThISO	TH-230	1	LCS	LCS	pCi/l	4.972	Y		0.1084	0.9087765	0.9087	0	5.356	92.833	OK		OK		EML Th-01 Modified	0.145	0.4		Y	n	92.8		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-01	09-08008	ThISO	TH-232	1	LCS	LCS	pCi/l	4.304	Y		0.05709	0.8038648	0.8038	0	4.791	89.839	OK		OK		EML Th-01 Modified	0.172	0.6		Y	n	89.8		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	ThISO	TH-227	1	DUP	BM-18	pCi/l	0.1589	Y		0.152	0.1510005	0.151	0				INV	OK		EML Th-01 Modified		0.4		Y	n		241.9		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-03	09-08008	ThISO	TH-228	1	DUP	BM-18	pCi/l	0.07561	N		0.2098	0.1161001	0.1161	0				INV	OK		EML Th-01 Modified		0.2		n	Y		80.1		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-03	09-08008	ThISO	TH-230	1	DUP	BM-18	pCi/l	0.112	N		0.1936	0.1317003	0.1317	0				INV	OK		EML Th-01 Modified		1.0		n	Y		20.8		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-03	09-08008	ThISO	TH-232	1	DUP	BM-18	pCi/l	-0.0218	N		0.2097	0.0222201	0.02222	0				INV	OK		EML Th-01 Modified		0.1		n	Y		293.7		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08008-04	09-08008	ThISO	TH-227	1	DO	BM-18	pCi/l	-0.0151	N	U	0.2401	0.06386	0.06386	0					OK		EML Th-01 Modified				n	Y				DO	
09-08008-04	09-08008	ThISO	TH-228	1	DO	BM-18	pCi/l	0.03235	N	U	0.1937	0.08264	0.08264	0					OK		EML Th-01 Modified				n	Y				DO	
09-08008-04	09-08008	ThISO	TH-230	1	DO	BM-18	pCi/l	0.138	N	U	0.2053	0.1402004	0.1402	0					OK		EML Th-01 Modified				n	Y				DO	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08008-04	09-08008	ThISO	TH-232	1	DO	**BM-18**	pCi/l	**0.1148**	N	U	0.1936	0.1274003	0.1274	0					OK		EML Th-01 Modified				n	Y				DO	
09-08008-05	09-08008	ThISO	TH-227	1	TRG	**BM-17**	pCi/l	**0.07311**	N	U	0.2502	0.1230001	0.123	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-05	09-08008	ThISO	TH-228	1	TRG	**BM-17**	pCi/l	**0.1217**	N	U	0.2018	0.1351003	0.1351	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-05	09-08008	ThISO	TH-230	1	TRG	**BM-17**	pCi/l	**0.3508**	Y		0.2021	0.2202016	0.2202	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-05	09-08008	ThISO	TH-232	1	TRG	**BM-17**	pCi/l	**0.03804**	N	U	0.1887	0.08418	0.08418	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-08	09-08008	ThISO	TH-227	1	TRG	**BM-4**	pCi/l	**0.09094**	N	U	0.2258	0.1260002	0.126	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-08	09-08008	ThISO	TH-228	1	TRG	**BM-4**	pCi/l	**-0.0463**	N	U	0.2517	0.0321602	0.03216	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-08	09-08008	ThISO	TH-230	1	TRG	**BM-4**	pCi/l	**0.2477**	Y		0.1949	0.1862009	0.1862	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-08	09-08008	ThISO	TH-232	1	TRG	**BM-4**	pCi/l	**0.06388**	N	U	0.208	0.1061001	0.1061	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-13	09-08008	ThISO	TH-227	1	TRG	**BM-6**	pCi/l	**0.01765**	N	U	0.2169	0.07517	0.07517	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-13	09-08008	ThISO	TH-228	1	TRG	**BM-6**	pCi/l	**0.05914**	N	U	0.1902	0.1029001	0.1029	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-13	09-08008	ThISO	TH-230	1	TRG	**BM-6**	pCi/l	**0.3102**	Y		0.1625	0.2207012	0.2207	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-13	09-08008	ThISO	TH-232	1	TRG	**BM-6**	pCi/l	**-0.006**	N	U	0.1623	0.01199	0.01199	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-14	09-08008	ThISO	TH-227	1	TRG	**BM-6-F**	pCi/l	**0.05145**	N	U	0.1678	0.0895101	0.08951	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-14	09-08008	ThISO	TH-228	1	TRG	**BM-6-F**	pCi/l	**-0.011**	N	U	0.2456	0.06809	0.06809	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-14	09-08008	ThISO	TH-230	1	TRG	**BM-6-F**	pCi/l	**0.3223**	Y		0.1639	0.2109014	0.2109	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-14	09-08008	ThISO	TH-232	1	TRG	**BM-6-F**	pCi/l	**0.1053**	N	U	0.182	0.1238003	0.1238	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-09	09-08008	ThISO	TH-227	1	TRG	**BM-7**	pCi/l	**0.1637**	N	U	0.1795	0.1505005	0.1505	0					OK		EML Th-01 Modified				n	n				TRG	
09-08008-09	09-08008	ThISO	TH-228	1	TRG	**BM-7**	pCi/l	**0.02333**	N	U	0.2795	0.1086	0.1086	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-09	09-08008	ThISO	TH-230	1	TRG	**BM-7**	pCi/l	**0.2518**	Y		0.1577	0.181801	0.1818	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-09	09-08008	ThISO	TH-232	1	TRG	**BM-7**	pCi/l	**0.02409**	N	U	0.1343	0.05907	0.05907	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-11	09-08008	ThISO	TH-227	1	TRG	**L-3**	pCi/l	**0.00758**	N	U	0.2829	0.1016	0.1016	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-11	09-08008	ThISO	TH-228	1	TRG	**L-3**	pCi/l	**-0.023**	N	U	0.1861	0.0209901	0.02099	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-11	09-08008	ThISO	TH-230	1	TRG	**L-3**	pCi/l	**0.2611**	Y		0.2072	0.184901	0.1849	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-11	09-08008	ThISO	TH-232	1	TRG	**L-3**	pCi/l	**-0.009**	N	U	0.1441	0.0129	0.0129	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-10	09-08008	ThISO	TH-227	1	TRG	**L-3-F**	pCi/l	**0.08306**	N	U	0.201	0.1184002	0.1184	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-10	09-08008	ThISO	TH-228	1	TRG	**L-3-F**	pCi/l	**-0.0007**	N	U	0.2408	0.07152	0.07152	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-10	09-08008	ThISO	TH-230	1	TRG	**L-3-F**	pCi/l	**0.2167**	Y		0.1765	0.1784007	0.1784	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-10	09-08008	ThISO	TH-232	1	TRG	**L-3-F**	pCi/l	**0.04286**	N	U	0.2126	0.0949001	0.0949	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-12	09-08008	ThISO	TH-227	1	TRG	**L-4-F**	pCi/l	**0.0683**	N	U	0.09242	0.0976001	0.0976	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-12	09-08008	ThISO	TH-228	1	TRG	**L-4-F**	pCi/l	**0.08987**	N	U	0.1804	0.1196002	0.1196	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-12	09-08008	ThISO	TH-230	1	TRG	**L-4-F**	pCi/l	**0.2885**	Y		0.1806	0.2090011	0.209	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08008-12	09-08008	ThISO	TH-232	1	TRG	**L-4-F**	pCi/l	**0.0665**	N	U	0.09011	0.0950301	0.09503	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-227	1	TRG	**SW/SD-01**	pCi/l	**0.1583**	N	U	0.2446	0.1589004	0.1589	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-228	1	TRG	**SW/SD-01**	pCi/l	**0.04699**	N	U	0.2293	0.1034001	0.1034	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-230	1	TRG	**SW/SD-01**	pCi/l	**0.08891**	N	U	0.1975	0.1162002	0.1162	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-07	09-08008	ThISO	TH-232	1	TRG	**SW/SD-01**	pCi/l	**0.02339**	N	U	0.1304	0.05734	0.05734	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-06	09-08008	ThISO	TH-227	1	TRG	**SW/SD-10**	pCi/l	**0.1084**	N	U	0.3137	0.1613002	0.1613	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-06	09-08008	ThISO	TH-228	1	TRG	**SW/SD-10**	pCi/l	**0.02121**	N	U	0.3335	0.1266	0.1266	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-06	09-08008	ThISO	TH-230	1	TRG	**SW/SD-10**	pCi/l	**0.1574**	N	U	0.1832	0.1553004	0.1553	0					OK		EML Th-01 Modified				n	n				TRG	
09-08008-06	09-08008	ThISO	TH-232	1	TRG	**SW/SD-10**	pCi/l	**0.09541**	N	U	0.156	0.1190002	0.119	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08008-02	09-08008	UUISO	U-234	1	MBL	**BLANK**	pCi/l	**0.08927**	N		0.1287	0.0861608	0.08616	0					OK	INV	EML U-02 Modified				n	n				MBL	MB<MDA
09-08008-02	09-08008	UUISO	U-235	1	MBL	**BLANK**	pCi/l	**-0.0033**	N		0.09036	0.006659	0.00666	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08008-02	09-08008	UUISO	U-238	1	MBL	**BLANK**	pCi/l	**0.06037**	N		0.07294	0.0639105	0.06391	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08008-01	09-08008	UUISO	U-234	1	LCS	**LCS**	pCi/l	**7.696**	Y		0.08015	1.3124004	1.312	0	8.264	93.128	OK		OK		EML U-02 Modified	0.298	**0.4**		Y	n	**93.1**		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-01	09-08008	UUISO	U-235	1	LCS	**LCS**	pCi/l	**0.5986**	Y		0.08439	0.227114	0.2271	0					OK		EML U-02 Modified				Y					LCS	
09-08008-01	09-08008	UUISO	U-238	1	LCS	**LCS**	pCi/l	**8.19**	Y		0.08878	1.3844298	1.384	0	8.055	101.67	OK		OK		EML U-02 Modified	0.29	**0.1**		Y	n	**101.7**		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	UUISO	U-234	1	DUP	**BM-18**	pCi/l	**11.67**	Y		0.5477	2.5484741	2.548	0				OK	OK		EML U-02 Modified		**0.5**		Y	n		**15.2**		DUP	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	UUISO	U-235	1	DUP	**BM-18**	pCi/l	**0.3176**	N		0.4706	0.3530025	0.353	0				INV	OK		EML U-02 Modified		**0.7**		n	Y		**85.5**		DUP	Z-Score (normalized dif.) < 1.98
09-08008-03	09-08008	UUISO	U-238	1	DUP	**BM-18**	pCi/l	**9.363**	Y		0.3798	2.1633595	2.163	0				INV	OK		EML U-02 Modified		**0.6**		Y	n		**21.2**		DUP	Z-Score (normalized dif.) < 1.98
09-08008-04	09-08008	UUISO	U-234	1	DO	**BM-18**	pCi/l	**10.02**	Y		0.7438	2.4283668	2.428	0					OK		EML U-02 Modified				Y	n				DO	
09-08008-04	09-08008	UUISO	U-235	1	DO	**BM-18**	pCi/l	**0.7921**	Y		0.4682	0.5871095	0.5871	0					OK		EML U-02 Modified				Y	n				DO	
09-08008-04	09-08008	UUISO	U-238	1	DO	**BM-18**	pCi/l	**7.566**	Y		0.4427	1.9842559	1.984	0					OK		EML U-02 Modified				Y	n				DO	
09-08008-05	09-08008	UUISO	U-234	1	TRG	**BM-17**	pCi/l	**9.582**	Y		0.4609	2.0653944	2.065	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-05	09-08008	UUISO	U-235	1	TRG	**BM-17**	pCi/l	**0.3404**	N	U	0.3961	0.3324031	0.3324	0					OK		EML U-02 Modified				n	n				TRG	
09-08008-05	09-08008	UUISO	U-238	1	TRG	**BM-17**	pCi/l	**8.078**	Y		0.1598	1.8193182	1.819	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-08	09-08008	UUISO	U-234	1	TRG	**BM-4**	pCi/l	**13.06**	Y		0.4446	2.7535495	2.753	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-08	09-08008	UUISO	U-235	1	TRG	**BM-4**	pCi/l	**1.312**	Y		0.4543	0.7010218	0.701	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-08	09-08008	UUISO	U-238	1	TRG	**BM-4**	pCi/l	**14.24**	Y		0.4079	2.9376124	2.937	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-13	09-08008	UUISO	U-234	1	TRG	**BM-6**	pCi/l	**0.4461**	N	U	0.6608	0.4975035	0.4975	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-13	09-08008	UUISO	U-235	1	TRG	**BM-6**	pCi/l	**0.1248**	N	U	0.6958	0.3059005	0.3059	0					OK		EML U-02 Modified				n	Y				TRG	

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09-08008-13	09-08008	UUISO	U-238	1	TRG	BM-6	pCi/l	0.1808	N	U	0.7319	0.3521008	0.3521	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-14	09-08008	UUISO	U-234	1	TRG	BM-6-F	pCi/l	0.4542	N	U	0.785	0.5329034	0.5329	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-14	09-08008	UUISO	U-235	1	TRG	BM-6-F	pCi/l	0.3725	N	U	1.051	0.5710022	0.571	0					INV		EML U-02 Modified				n	Y				TRG	
09-08008-14	09-08008	UUISO	U-238	1	TRG	BM-6-F	pCi/l	-0.0026	N	U	0.9599	0.2808	0.2808	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-09	09-08008	UUISO	U-234	1	TRG	BM-7	pCi/l	1.039	Y		0.3189	0.5226183	0.5226	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-09	09-08008	UUISO	U-235	1	TRG	BM-7	pCi/l	0.2177	Y		0.1967	0.2534017	0.2534	0					OK		EML U-02 Modified				Y	Y	0.418			TRG	
09-08008-09	09-08008	UUISO	U-238	1	TRG	BM-7	pCi/l	0.5073	Y		0.3176	0.3603063	0.3603	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-11	09-08008	UUISO	U-234	1	TRG	L-3	pCi/l	3.543	Y		0.4697	1.1960931	1.196	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-11	09-08008	UUISO	U-235	1	TRG	L-3	pCi/l	0.2719	N	U	0.4446	0.3371019	0.3371	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-11	09-08008	UUISO	U-238	1	TRG	L-3	pCi/l	2.985	Y		0.4677	1.0780733	1.078	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-10	09-08008	UUISO	U-234	1	TRG	L-3-F	pCi/l	2.187	Y		0.2044	0.8807482	0.8807	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-10	09-08008	UUISO	U-235	1	TRG	L-3-F	pCi/l	0.2791	Y		0.2521	0.3252021	0.3252	0					OK		EML U-02 Modified				Y	Y				TRG	
09-08008-10	09-08008	UUISO	U-238	1	TRG	L-3-F	pCi/l	2.852	Y		0.5562	1.0390694	1.039	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-12	09-08008	UUISO	U-234	1	TRG	L-4-F	pCi/l	-0.063	N	U	1.004	0.2666001	0.2666	0					INV		EML U-02 Modified				n	Y				TRG	
09-08008-12	09-08008	UUISO	U-235	1	TRG	L-4-F	pCi/l	-0.0996	N	U	0.9578	0.1011009	0.1011	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-12	09-08008	UUISO	U-238	1	TRG	L-4-F	pCi/l	-0.1005	N	U	0.8266	0.091621	0.09162	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-07	09-08008	UUISO	U-234	1	TRG	SW/SD-01	pCi/l	57.8	Y		0.9793	10.342866	10.34	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-07	09-08008	UUISO	U-235	1	TRG	SW/SD-01	pCi/l	4.736	Y		1.001	2.009099	2.009	0					INV		EML U-02 Modified				Y	n				TRG	
09-08008-07	09-08008	UUISO	U-238	1	TRG	SW/SD-01	pCi/l	56.88	Y		1.16	10.202813	10.2	0					INV		EML U-02 Modified				Y	n				TRG	
09-08008-06	09-08008	UUISO	U-234	1	TRG	SW/SD-10	pCi/l	7.978	Y		0.7122	2.3352418	2.335	0					OK		EML U-02 Modified				Y	n				TRG	
09-08008-06	09-08008	UUISO	U-235	1	TRG	SW/SD-10	pCi/l	0.2685	N	U	0.3638	0.3825017	0.3825	0					OK		EML U-02 Modified				n	Y				TRG	
09-08008-06	09-08008	UUISO	U-238	1	TRG	SW/SD-10	pCi/l	8.017	Y		0.2936	2.3322445	2.332	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-02	09-08009	KPA_LIQ	TOTAL U	1	MBL	BLANK	ug/l	0	N		1	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08009-01	09-08009	KPA_LIQ	TOTAL U	1	LCS	LCS	ug/l	8.22436	Y		1	0.5362458	0.1025	0.06	8	102.8	OK		OK		ASTM D5174 Modified	0.16	0.4		Y	n	102.8		N	LCS	Z-Score (normalized dif.) < 1.98
09-08009-0H	09-08009	KPA_LIQ	TOTAL U	1	LCSH	LCS-H	ug/l	196.379	Y		1	14.03815	6.25375	0.06	200	98.189	OK		OK				0.3		Y	n	98.2		Y	LCSH	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	KPA_LIQ	TOTAL U	1	DUP	BM-17-F	ug/l	17.0563	Y		1	1.2288026	0.56424	0.06				OK	OK		ASTM D5174 Modified		0.8		Y	n		7.8		DUP	Z-Score (normalized dif.) < 1.98
09-08009-04	09-08009	KPA_LIQ	TOTAL U	1	DO	BM-17-F	ug/l	18.4346	Y		1	1.3250639	0.60318	0.06					OK		ASTM D5174 Modified				Y	n				DO	
09-08009-13	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-16	ug/l	26.4563	Y		1	1.901405	0.8651	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-14	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-16-F	ug/l	29.3416	Y		1	2.1034277	0.94765	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-07	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-18-F	ug/l	35.3711	Y		1	2.3203255	0.50926	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-18	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-19	ug/l	27.0678	Y		1	1.9397395	0.87269	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-17	09-08009	KPA_LIQ	TOTAL U	1	TRG	BM-7-F	ug/l	1.03339	Y		1	0.067708	0.0145	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-05	09-08009	KPA_LIQ	TOTAL U	1	TRG	L-2	ug/l	6.39801	Y		1	0.423065	0.10638	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-06	09-08009	KPA_LIQ	TOTAL U	1	TRG	L-2-F	ug/l	49.4745	Y	R	1	3.2724235	0.82635	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08009-11	09-08009	KPA_LIQ	TOTAL U	1	TRG	L-4	ug/l	0.22229	N	U	1	0.0147218	0.00379	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08009-16	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-06	ug/l	76.0859	Y		1	5.4445273	2.43534	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-15	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-07	ug/l	23.4253	Y		1	1.5390887	0.34804	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-12	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-08	ug/l	19.3179	Y		1	1.2667705	0.27597	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-08	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-08-D	ug/l	23.2177	Y		1	1.5234031	0.3358	0.06					OK		ASTM D5174 Modified		2.0		Y	n		18.3		TRG	Field Duplicate: Z-Score (normalized dif.) > 1.98
09-08009-09	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-09	ug/l	107.562	Y	R	1	7.0659591	1.59341	0.06					OK		ASTM D5174 Modified				Y	n				TRG	Laboratory dilution issue.
09-08009-10	09-08009	KPA_LIQ	TOTAL U	1	TRG	SW/SD-11	ug/l	19.1882	Y		1	1.2585495	0.27542	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08009-02	09-08009	Ra226LC	RA-226	1	MBL	BLANK	pCi/l	0.03968	N		0.121842	0.070209	0.0701	0.1					OK	INV	EPA 903.1				n	Y				MBL	MB<MDA
09-08009-01	09-08009	Ra226LC	RA-226	1	LCS	LCS	pCi/l	10.9653	Y		0.216865	1.227548	0.55181	0.1	10.2	107.48	OK		OK		EPA 903.1	0.469	0.6		Y	n	107.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	Ra226LC	RA-226	1	DUP	BM-17-F	pCi/l	0.36701	N		0.375024	0.2517016	0.24901	0.1				OK	OK		EPA 903.1		0.0		n	n		2.0		DUP	Z-Score (normalized dif.) < 1.98
09-08009-04	09-08009	Ra226LC	RA-226	1	DO	BM-17-F	pCi/l	0.35981	Y		0.282452	0.1999421	0.19668	0.1					OK		EPA 903.1				Y	n				DO	
09-08009-13	09-08009	Ra226LC	RA-226	1	TRG	BM-16	pCi/l	0.71186	Y		0.387231	0.2862168	0.27722	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-14	09-08009	Ra226LC	RA-226	1	TRG	BM-16-F	pCi/l	0.54844	Y		0.297708	0.2225317	0.21567	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-07	09-08009	Ra226LC	RA-226	1	TRG	BM-18-F	pCi/l	0.89834	Y		0.407986	0.3409551	0.32891	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-18	09-08009	Ra226LC	RA-226	1	TRG	BM-19	pCi/l	0.33789	N	U	0.367213	0.2406811	0.2383	0.1					OK		EPA 903.1				n	n				TRG	
09-08009-17	09-08009	Ra226LC	RA-226	1	TRG	BM-7-F	pCi/l	1.68016	Y		0.307529	0.3975542	0.36031	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-05	09-08009	Ra226LC	RA-226	1	TRG	L-2	pCi/l	0.4527	Y		0.359119	0.2488163	0.24466	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-06	09-08009	Ra226LC	RA-226	1	TRG	L-2-F	pCi/l	1.3298	Y		0.518567	0.4481366	0.42795	0.1					INV		EPA 903.1				Y	n				TRG	
09-08009-11	09-08009	Ra226LC	RA-226	1	TRG	L-4	pCi/l	0.3368	Y		0.249007	0.1852241	0.18214	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-16	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-06	pCi/l	0.43553	Y		0.293052	0.2156648	0.21122	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-15	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-07	pCi/l	1.21331	Y		0.423353	0.4160162	0.39793	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-12	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-08	pCi/l	0.60272	Y		0.227754	0.2057232	0.1967	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-08	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-08-D	pCi/l	1.29881	Y		0.25907	0.3143565	0.28627	0.1					OK		EPA 903.1		1.9		Y	n		64.4		TRG	Field Duplicate: Z-Score (normalized dif.) 1.98
09-08009-09	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-09	pCi/l	0.36336	Y		0.356961	0.2341278	0.23129	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-10	09-08009	Ra226LC	RA-226	1	TRG	SW/SD-11	pCi/l	0.74124	Y		0.347285	0.2779103	0.26784	0.1					OK		EPA 903.1				Y	n				TRG	
09-08009-02	09-08009	Ra228	RA-228	1	MBL	BLANK	pCi/l	0.66638	N		1.004285	0.5042407	0.50381	0.03					OK	OK	EPA 904.0 Modified				n	n				MBL	MB<MDA
09-08009-01	09-08009	Ra228	RA-228	1	LCS	LCS	pCi/l	15.7154	Y		1.047165	1.1322402	1.01986	0.03	18.55	84.697	OK		OK		EPA 904.0 Modified	0.946	1.9		Y	n	84.7		Y	LCS	Z-Score (normalized dif.) < 1.98

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08009-03	09-08009	Ra228	RA-228	1	DUP	L-2	pCi/l	0.32547	N		1.262467	0.6063164	0.60623	0.03				INV	OK		EPA 904.0 Modified		0.7		n	Y		92.7		DUP	Z-Score (normalized dif.) < 1.98
09-08009-05	09-08009	Ra228	RA-228	1	DO	L-2	pCi/l	0.88798	N	U	1.171827	0.5962853	0.59564	0.03					OK		EPA 904.0 Modified				n	n				DO	
09-08009-13	09-08009	Ra228	RA-228	1	TRG	BM-16	pCi/l	0.13985	N	U	1.122981	0.5329505	0.53293	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-14	09-08009	Ra228	RA-228	1	TRG	BM-16-F	pCi/l	1.25366	Y		1.040033	0.5602567	0.55888	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08009-04	09-08009	Ra228	RA-228	1	TRG	BM-17-F	pCi/l	0.62599	N	U	0.959964	0.4837826	0.48339	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08009-07	09-08009	Ra228	RA-228	1	TRG	BM-18-F	pCi/l	0.95594	Y		0.837632	0.4450415	0.44403	0.03					OK		EPA 904.0 Modified				Y	n				TRG	
09-08009-18	09-08009	Ra228	RA-228	1	TRG	BM-19	pCi/l	0.55608	N	U	0.814866	0.4121171	0.41175	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08009-17	09-08009	Ra228	RA-228	1	TRG	BM-7-F	pCi/l	0.45328	N	U	1.306677	0.6347473	0.63459	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-06	09-08009	Ra228	RA-228	1	TRG	L-2-F	pCi/l	4.53719	N	U	7.873385	3.9324857	3.92992	0.03					INV		EPA 904.0 Modified				n	n				TRG	
09-08009-11	09-08009	Ra228	RA-228	1	TRG	L-4	pCi/l	2.37318	N	U	3.473733	1.7413824	1.7398	0.03					INV		EPA 904.0 Modified				n	n				TRG	
09-08009-16	09-08009	Ra228	RA-228	1	TRG	SW/SD-06	pCi/l	0.68893	N	U	1.455468	0.7164052	0.71608	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-15	09-08009	Ra228	RA-228	1	TRG	SW/SD-07	pCi/l	0.43418	N	U	1.333858	0.6465114	0.64637	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-12	09-08009	Ra228	RA-228	1	TRG	SW/SD-08	pCi/l	0.80675	N	U	1.529559	0.7571478	0.75673	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08009-08	09-08009	Ra228	RA-228	1	TRG	SW/SD-08-D	pCi/l	1.00842	Y		0.872636	0.465819	0.46475	0.03					OK		EPA 904.0 Modified		0.2		Y	n		22.2		TRG	Field Duplicate, Z-Score (normalized dif.) < 1.98
09-08009-09	09-08009	Ra228	RA-228	1	TRG	SW/SD-09	pCi/l	0.12881	N	U	1.001012	0.473585	0.47357	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-10	09-08009	Ra228	RA-228	1	TRG	SW/SD-11	pCi/l	-0.2438	N	U	2.630376	1.2153354	1.21531	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08009-02	09-08009	ThISO	TH-227	1	MBL	BLANK	pCi/l	0.00209	N		0.1459	0.04899	0.04899	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	ThISO	TH-228	1	MBL	BLANK	pCi/l	-0.0083	N		0.1328	0.03529	0.03529	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	ThISO	TH-230	1	MBL	BLANK	pCi/l	0.03819	N		0.1806	0.0811401	0.08114	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	ThISO	TH-232	1	MBL	BLANK	pCi/l	0.02871	N		0.07258	0.0450501	0.04505	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08009-01	09-08009	ThISO	TH-228	1	LCS	LCS	pCi/l	4.568	Y		0.1027	0.850369	0.8503	0	4.907	93.083	OK		OK		EML Th-01 Modified	0.177	0.4		Y	n	93.1		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	ThISO	TH-230	1	LCS	LCS	pCi/l	4.884	Y		0.1109	0.8998746	0.8998	0	5.358	91.154	OK		OK		EML Th-01 Modified	0.145	0.5		Y	n	91.2		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	ThISO	TH-232	1	LCS	LCS	pCi/l	4.049	Y		0.05839	0.76836	0.7683	0	4.907	82.507	OK		OK		EML Th-01 Modified	0.177	1.1		Y	n	82.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	ThISO	TH-227	1	DUP	L-2-F	pCi/l	0.01297	N		0.2336	0.08317	0.08317	0				INV	OK		EML Th-01 Modified		0.8		n	Y		98.2		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-03	09-08009	ThISO	TH-228	1	DUP	L-2-F	pCi/l	0.1411	N		0.1885	0.1385004	0.1385	0				INV	OK		EML Th-01 Modified		0.2		n	n		108.2		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-03	09-08009	ThISO	TH-230	1	DUP	L-2-F	pCi/l	0.1073	N		0.1997	0.1243003	0.1243	0				INV	OK		EML Th-01 Modified		1.0		n	Y		73.1		DUP	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	ThISO	TH-232	1	DUP	L-2-F	pCi/l	-0.0229	N		0.1884	0.0209301	0.02093	0				INV	OK		EML Th-01 Modified		0.6		n	Y		-136.9		DUP	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-06	09-08009	ThISO	TH-227	1	DO	L-2-F	pCi/l	0.03801	N	U	0.2187	0.09371	0.09371	0					OK		EML Th-01 Modified				n	Y				DO	
09-08009-06	09-08009	ThISO	TH-228	1	DO	L-2-F	pCi/l	0.04204	N	U	0.205	0.0925301	0.09253	0					OK		EML Th-01 Modified				n	Y				DO	
09-08009-06	09-08009	ThISO	TH-230	1	DO	L-2-F	pCi/l	0.2309	Y		0.1766	0.1664009	0.1664	0					OK		EML Th-01 Modified				Y	n				DO	
09-08009-06	09-08009	ThISO	TH-232	1	DO	L-2-F	pCi/l	-0.0043	N	U	0.1166	0.008607	0.00861	0					OK		EML Th-01 Modified				n	Y				DO	
09-08009-13	09-08009	ThISO	TH-227	1	TRG	BM-16	pCi/l	-0.0006	N	U	0.2034	0.05957	0.05957	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-13	09-08009	ThISO	TH-228	1	TRG	BM-16	pCi/l	0.0313	N	U	0.1874	0.07996	0.07996	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-13	09-08009	ThISO	TH-230	1	TRG	BM-16	pCi/l	0.1695	N	U	0.1755	0.1466006	0.1466	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-13	09-08009	ThISO	TH-232	1	TRG	BM-16	pCi/l	0.04898	N	U	0.1239	0.0768201	0.07682	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-14	09-08009	ThISO	TH-227	1	TRG	BM-16-F	pCi/l	0.209	N	U	0.2584	0.1920006	0.192	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-14	09-08009	ThISO	TH-228	1	TRG	BM-16-F	pCi/l	-0.0242	N	U	0.2986	0.07873	0.07873	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-14	09-08009	ThISO	TH-230	1	TRG	BM-16-F	pCi/l	0.1074	N	U	0.2385	0.1405002	0.1405	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-14	09-08009	ThISO	TH-232	1	TRG	BM-16-F	pCi/l	-0.0116	N	U	0.1844	0.01653	0.01653	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-04	09-08009	ThISO	TH-227	1	TRG	BM-17-F	pCi/l	-0.0162	N	U	0.2586	0.06878	0.06878	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-04	09-08009	ThISO	TH-228	1	TRG	BM-17-F	pCi/l	0.06519	N	U	0.2086	0.1083001	0.1083	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-04	09-08009	ThISO	TH-230	1	TRG	BM-17-F	pCi/l	0.1835	N	U	0.2088	0.1635006	0.1635	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-04	09-08009	ThISO	TH-232	1	TRG	BM-17-F	pCi/l	0.00952	N	U	0.195	0.06296	0.06296	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-07	09-08009	ThISO	TH-227	1	TRG	BM-18-F	pCi/l	0.06339	N	U	0.2368	0.1148001	0.1148	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-07	09-08009	ThISO	TH-228	1	TRG	BM-18-F	pCi/l	0.04664	N	U	0.2639	0.1150001	0.115	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-07	09-08009	ThISO	TH-230	1	TRG	BM-18-F	pCi/l	0.2286	Y		0.2043	0.1837008	0.1837	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-07	09-08009	ThISO	TH-232	1	TRG	BM-18-F	pCi/l	0.00467	N	U	0.2181	0.06669	0.06669	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-227	1	TRG	BM-19	pCi/l	0.07983	N	U	0.2249	0.1226001	0.1226	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-228	1	TRG	BM-19	pCi/l	0.05077	N	U	0.2022	0.0990101	0.09901	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-230	1	TRG	BM-19	pCi/l	0.07787	N	U	0.2197	0.1196001	0.1196	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-18	09-08009	ThISO	TH-232	1	TRG	BM-19	pCi/l	0.01641	N	U	0.2021	0.06994	0.06994	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-17	09-08009	ThISO	TH-227	1	TRG	BM-7-F	pCi/l	0.1521	N	U	0.2458	0.1604004	0.1604	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-17	09-08009	ThISO	TH-228	1	TRG	BM-7-F	pCi/l	0.06138	N	U	0.2882	0.1312001	0.1312	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-17	09-08009	ThISO	TH-230	1	TRG	BM-7-F	pCi/l	0.2311	Y		0.1861	0.1814008	0.1814	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-17	09-08009	ThISO	TH-232	1	TRG	BM-7-F	pCi/l	-0.0111	N	U	0.2505	0.06838	0.06838	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-05	09-08009	ThISO	TH-227	1	TRG	L-2	pCi/l	0.00353	N	U	0.2463	0.08282	0.08282	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-05	09-08009	ThISO	TH-228	1	TRG	L-2	pCi/l	0.04367	N	U	0.2619	0.1135	0.1135	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-05	09-08009	ThISO	TH-230	1	TRG	L-2	pCi/l	0.1236	N	U	0.1438	0.1216004	0.1216	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-05	09-08009	ThISO	TH-232	1	TRG	L-2	pCi/l	-0.0045	N	U	0.1225	0.009044	0.00904	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-11	09-08009	ThISO	TH-227	1	TRG	L-4	pCi/l	-0.0119	N	U	0.2675	0.07315	0.07315	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-11	09-08009	ThISO	TH-228	1	TRG	L-4	pCi/l	0.03132	N	U	0.3001	0.1196	0.1196	0					OK		EML Th-01 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08009-11	09-08009	ThISO	TH-230	1	TRG	L-4	pCi/l	0.2782	Y		0.1742	0.2013011	0.2013	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-11	09-08009	ThISO	TH-232	1	TRG	L-4	pCi/l	0.144	N	U	0.1934	0.1475004	0.1475	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-227	1	TRG	SW/SD-06	pCi/l	0.06244	N	U	0.203	0.1037001	0.1037	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-228	1	TRG	SW/SD-06	pCi/l	0.01898	N	U	0.1534	0.05928	0.05928	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-230	1	TRG	SW/SD-06	pCi/l	0.1037	N	U	0.1536	0.1159003	0.1159	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-16	09-08009	ThISO	TH-232	1	TRG	SW/SD-06	pCi/l	0.05656	N	U	0.07663	0.0807301	0.08073	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-227	1	TRG	SW/SD-07	pCi/l	0.05935	N	U	0.2941	0.1308001	0.1308	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-228	1	TRG	SW/SD-07	pCi/l	0.1724	N	U	0.2746	0.1822005	0.1822	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-230	1	TRG	SW/SD-07	pCi/l	0.05788	N	U	0.2873	0.1275001	0.1275	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-15	09-08009	ThISO	TH-232	1	TRG	SW/SD-07	pCi/l	0.03525	N	U	0.09553	0.07088	0.07088	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-12	09-08009	ThISO	TH-227	1	TRG	SW/SD-08	pCi/l	0.06116	N	U	0.2285	0.1107001	0.1107	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-12	09-08009	ThISO	TH-228	1	TRG	SW/SD-08	pCi/l	0.04562	N	U	0.1815	0.0889301	0.08893	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-12	09-08009	ThISO	TH-230	1	TRG	SW/SD-08	pCi/l	0.1699	N	U	0.2451	0.1655005	0.1655	0					OK		EML Th-01 Modified				n	n				TRG	
09-08009-12	09-08009	ThISO	TH-232	1	TRG	SW/SD-08	pCi/l	-0.0205	N	U	0.1969	0.0208501	0.02085	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-08	09-08009	ThISO	TH-227	1	TRG	SW/SD-08-D	pCi/l	0.07889	N	U	0.1908	0.1124002	0.1124	0					OK		EML Th-01 Modified		0.1		n	Y		25.3		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	ThISO	TH-228	1	TRG	SW/SD-08-D	pCi/l	-0.0066	N	U	0.297	0.09681	0.09681	0					OK		EML Th-01 Modified		0.4		n	Y		267.7		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	ThISO	TH-230	1	TRG	SW/SD-08-D	pCi/l	0.144	N	U	0.1675	0.1419004	0.1419	0					OK		EML Th-01 Modified		0.1		n	n		16.5		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	ThISO	TH-232	1	TRG	SW/SD-08-D	pCi/l	0.1181	N	U	0.1427	0.1260003	0.126	0					OK		EML Th-01 Modified		1.1		n	Y		283.8		TRG	Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-09	09-08009	ThISO	TH-227	1	TRG	SW/SD-09	pCi/l	-0.0142	N	U	0.1676	0.01661	0.01661	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-09	09-08009	ThISO	TH-228	1	TRG	SW/SD-09	pCi/l	-0.0281	N	U	0.2008	0.0235801	0.02358	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-09	09-08009	ThISO	TH-230	1	TRG	SW/SD-09	pCi/l	0.07218	N	U	0.1471	0.0958902	0.09589	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-09	09-08009	ThISO	TH-232	1	TRG	SW/SD-09	pCi/l	0.03575	N	U	0.1773	0.07909	0.07909	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-10	09-08009	ThISO	TH-227	1	TRG	SW/SD-11	pCi/l	-0.0657	N	U	0.2502	0.0349503	0.03495	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-10	09-08009	ThISO	TH-228	1	TRG	SW/SD-11	pCi/l	0.00357	N	U	0.1645	0.05119	0.05119	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-10	09-08009	ThISO	TH-230	1	TRG	SW/SD-11	pCi/l	0.325	Y		0.1832	0.1928015	0.1928	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08009-10	09-08009	ThISO	TH-232	1	TRG	SW/SD-11	pCi/l	0.06249	N	U	0.1274	0.0829601	0.08296	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08009-02	09-08009	UUISO	U-234	1	MBL	BLANK	pCi/l	0.03902	N		0.0638	0.0483203	0.04832	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	UUISO	U-235	1	MBL	BLANK	pCi/l	0	N		0.0461	0.0035231	0.00352	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08009-02	09-08009	UUISO	U-238	1	MBL	BLANK	pCi/l	0.0114	N		0.06353	0.0279	0.0279	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08009-01	09-08009	UUISO	U-234	1	LCS	LCS	pCi/l	7.654	Y		0.05974	1.252415	1.252	0	8.294	92.282	OK		OK		EML U-02 Modified	0.299	0.5		Y	n	92.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	UUISO	U-235	1	LCS	LCS	pCi/l	0.5784	Y		0.1042	0.2106141	0.2106	0					OK		EML U-02 Modified				Y					LCS	Z-Score (normalized dif.) < 1.98
09-08009-01	09-08009	UUISO	U-238	1	LCS	LCS	pCi/l	8.531	Y		0.06969	1.3774687	1.377	0	8.085	105.52	OK		OK		EML U-02 Modified	0.291	0.3		Y	n	105.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	UUISO	U-234	1	DUP	BM-17-F	pCi/l	9.606	Y		0.1559	2.0384016	2.038	0				INV	OK		EML U-02 Modified		1.1		Y	n		35.5		DUP	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	UUISO	U-235	1	DUP	BM-17-F	pCi/l	0.5556	Y		0.3284	0.4101067	0.4101	0				OK	OK		EML U-02 Modified		0.1		Y	n		14.9		DUP	Z-Score (normalized dif.) < 1.98
09-08009-03	09-08009	UUISO	U-238	1	DUP	BM-17-F	pCi/l	7.389	Y		0.1552	1.6862872	1.686	0				OK	OK		EML U-02 Modified		0.2		Y	n		6.2		DUP	Z-Score (normalized dif.) < 1.98
09-08009-04	09-08009	UUISO	U-234	1	DO	BM-17-F	pCi/l	6.71	Y		0.2549	1.5532571	1.553	0					OK		EML U-02 Modified				Y	n				DO	
09-08009-04	09-08009	UUISO	U-235	1	DO	BM-17-F	pCi/l	0.6448	Y		0.4097	0.4414084	0.4414	0					OK		EML U-02 Modified				Y	n				DO	
09-08009-04	09-08009	UUISO	U-238	1	DO	BM-17-F	pCi/l	6.946	Y		0.2973	1.5902691	1.59	0					OK		EML U-02 Modified				Y	n				DO	
09-08009-13	09-08009	UUISO	U-234	1	TRG	BM-16	pCi/l	14.25	Y		0.2753	2.637683	2.637	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-13	09-08009	UUISO	U-235	1	TRG	BM-16	pCi/l	0.9395	Y		0.1697	0.5030156	0.503	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-13	09-08009	UUISO	U-238	1	TRG	BM-16	pCi/l	11.31	Y		0.2741	2.2015155	2.201	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-14	09-08009	UUISO	U-234	1	TRG	BM-16-F	pCi/l	12.26	Y		0.2617	2.8154736	2.815	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-14	09-08009	UUISO	U-235	1	TRG	BM-16-F	pCi/l	1.31	Y		0.3228	0.8128187	0.8128	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-14	09-08009	UUISO	U-238	1	TRG	BM-16-F	pCi/l	11.92	Y		0.7121	2.764456	2.764	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-07	09-08009	UUISO	U-234	1	TRG	BM-18-F	pCi/l	10.53	Y		0.4435	2.1794513	2.179	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-07	09-08009	UUISO	U-235	1	TRG	BM-18-F	pCi/l	0.6087	Y		0.3811	0.4322076	0.4322	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-07	09-08009	UUISO	U-238	1	TRG	BM-18-F	pCi/l	9.455	Y		0.3076	2.0073951	2.007	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-18	09-08009	UUISO	U-234	1	TRG	BM-19	pCi/l	11.96	Y		0.2891	2.2745579	2.274	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-18	09-08009	UUISO	U-235	1	TRG	BM-19	pCi/l	0.6103	Y		0.3871	0.4037082	0.4037	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-18	09-08009	UUISO	U-238	1	TRG	BM-19	pCi/l	10.6	Y		0.3535	2.0714812	2.071	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-17	09-08009	UUISO	U-234	1	TRG	BM-7-F	pCi/l	0.653	Y		0.3036	0.4002095	0.4002	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-17	09-08009	UUISO	U-235	1	TRG	BM-7-F	pCi/l	-0.0118	N	U	0.3197	0.0235601	0.02356	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-17	09-08009	UUISO	U-238	1	TRG	BM-7-F	pCi/l	0.4177	Y		0.3363	0.3228048	0.3228	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-05	09-08009	UUISO	U-234	1	TRG	L-2	pCi/l	2.745	Y		0.8429	1.4250469	1.425	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-05	09-08009	UUISO	U-235	1	TRG	L-2	pCi/l	0.3509	N	U	0.8875	0.550602	0.5506	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-05	09-08009	UUISO	U-238	1	TRG	L-2	pCi/l	1.778	Y		0.9336	1.1310248	1.131	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-06	09-08009	UUISO	U-234	1	TRG	L-2-F	pCi/l	3.878	Y		0.9375	1.5290872	1.529	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-06	09-08009	UUISO	U-235	1	TRG	L-2-F	pCi/l	0.2603	N	U	0.6581	0.4077015	0.4077	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-06	09-08009	UUISO	U-238	1	TRG	L-2-F	pCi/l	4.457	Y		0.5311	1.6351078	1.635	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-11	09-08009	UUISO	U-234	1	TRG	L-4	pCi/l	-0.0518	N	U	0.4983	0.0524005	0.0524	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-11	09-08009	UUISO	U-235	1	TRG	L-4	pCi/l	-0.0319	N	U	0.5092	0.0454402	0.04544	0					OK		EML U-02 Modified				n	Y				TRG	

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09-08009-11	09-08009	UUISO	U-238	1	TRG	L-4	pCi/l	-0.0902	N	U	0.59	0.069641	0.06964	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-16	09-08009	UUISO	U-234	1	TRG	SW/SD-06	pCi/l	27.57	Y		1.13	5.5152227	5.514	0					INV		EML U-02 Modified				Y	n				TRG	
09-08009-16	09-08009	UUISO	U-235	1	TRG	SW/SD-06	pCi/l	1.864	Y		1.078	1.1770262	1.177	0					INV		EML U-02 Modified				Y	n				TRG	
09-08009-16	09-08009	UUISO	U-238	1	TRG	SW/SD-06	pCi/l	28.47	Y		0.9302	5.6402749	5.639	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-15	09-08009	UUISO	U-234	1	TRG	SW/SD-07	pCi/l	6.491	Y		0.5477	1.8731995	1.873	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-15	09-08009	UUISO	U-235	1	TRG	SW/SD-07	pCi/l	0.9891	Y		0.5184	0.6924125	0.6924	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-15	09-08009	UUISO	U-238	1	TRG	SW/SD-07	pCi/l	5.559	Y		0.5453	1.6911621	1.691	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-12	09-08009	UUISO	U-234	1	TRG	SW/SD-08	pCi/l	5.925	Y		0.6429	1.8341698	1.834	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-12	09-08009	UUISO	U-235	1	TRG	SW/SD-08	pCi/l	0.5647	N	U	0.657	0.5533051	0.5533	0					OK		EML U-02 Modified				n	n				TRG	
09-08009-12	09-08009	UUISO	U-238	1	TRG	SW/SD-08	pCi/l	5.525	Y		0.5899	1.7491548	1.749	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-08	09-08009	UUISO	U-234	1	TRG	SW/SD-08-D	pCi/l	4.87	Y		1.001	1.724122	1.724	0					INV		EML U-02 Modified		0.4		Y	n		19.5		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08009-08	09-08009	UUISO	U-235	1	TRG	SW/SD-08-D	pCi/l	0.2491	N	U	0.63	0.3903014	0.3903	0					OK		EML U-02 Modified		0.5		n	Y		77.6		TRG	Field Dup. Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08009-08	09-08009	UUISO	U-238	1	TRG	SW/SD-08-D	pCi/l	5.677	Y		0.5958	1.8671531	1.867	0					OK		EML U-02 Modified		0.1		Y	n		2.7		TRG	Field Dup. Z-Score (normalized dif.) < 1.98
09-08009-09	09-08009	UUISO	U-234	1	TRG	SW/SD-09	pCi/l	7.296	Y		0.6858	2.0042356	2.004	0					OK		EML U-02 Modified									TRG	
09-08009-09	09-08009	UUISO	U-235	1	TRG	SW/SD-09	pCi/l	0.2891	N	U	0.5893	0.3830019	0.383	0					OK		EML U-02 Modified				n	Y				TRG	
09-08009-09	09-08009	UUISO	U-238	1	TRG	SW/SD-09	pCi/l	6.228	Y		0.2377	1.7911921	1.791	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-10	09-08009	UUISO	U-234	1	TRG	SW/SD-11	pCi/l	5.442	Y		0.6439	1.740151	1.74	0					OK		EML U-02 Modified				Y	n				TRG	
09-08009-10	09-08009	UUISO	U-235	1	TRG	SW/SD-11	pCi/l	0.4854	Y		0.3289	0.4924042	0.4924	0					OK		EML U-02 Modified				Y	Y				TRG	
09-08009-10	09-08009	UUISO	U-238	1	TRG	SW/SD-11	pCi/l	4.702	Y		0.2654	1.5751245	1.575	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-02	09-08010	KPA_LIQ	TOTAL U	1	MBL	BLANK	ug/l	0	N		1	0	0	0.06					OK	OK	ASTM D5174 Modified				n	n				MBL	MB<MDA
09-08010-01	09-08010	KPA_LIQ	TOTAL U	1	LCS	LCS	ug/l	7.93211	Y		1	0.5177001	0.10149	0.06	8	99.151	OK		OK		ASTM D5174 Modified	0.16	0.1		Y	n	99.2		N	LCS	Z-Score (normalized dif.) < 1.98
09-08010-0H	09-08010	KPA_LIQ	TOTAL U	1	LCSH	LCS-H	ug/l	205.856	Y		1	14.739099	6.6081	0.06	200	102.93	OK		OK				0.4		Y	n	102.9		Y	LCSH	
09-08010-03	09-08010	KPA_LIQ	TOTAL U	1	DUP	L-1	ug/l	0.97806	N		1	0.0671793	0.02439	0.06				OK	OK		ASTM D5174 Modified		0.4		n	n		3.7		DUP	Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	KPA_LIQ	TOTAL U	1	TRG	L-1-D	ug/l	0.90356	N	U	1	0.0616517	0.02138	0.06					OK		ASTM D5174 Modified		1.2		n	n		11.6		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-04	09-08010	KPA_LIQ	TOTAL U	1	DO	L-1	ug/l	1.01444	Y		1	0.0704526	0.02736	0.06					OK		ASTM D5174 Modified				Y	n				DO	
09-08010-12	09-08010	KPA_LIQ	TOTAL U	1	TRG	BM-19-F	ug/l	25.4029	Y		1	1.821615	0.82164	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-15	09-08010	KPA_LIQ	TOTAL U	1	TRG	BM-4-F	ug/l	26.7362	Y		1	1.9223263	0.87603	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-11	09-08010	KPA_LIQ	TOTAL U	1	TRG	BM-7-F-D	ug/l	1.10552	Y		1	0.072382	0.01527	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-14	09-08010	KPA_LIQ	TOTAL U	1	TRG	DW-1	ug/l	0.54548	N	U	1	0.0357615	0.00775	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-13	09-08010	KPA_LIQ	TOTAL U	1	TRG	DW-1-F	ug/l	0.3302	N	U	1	0.0217161	0.005	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-05	09-08010	KPA_LIQ	TOTAL U	1	TRG	L-1-F	ug/l	0.91493	N	U	1	0.0624187	0.02162	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-10	09-08010	KPA_LIQ	TOTAL U	1	TRG	RINSATE	ug/l	0.03155	N	U	1	0.0020768	0.00049	0.06					OK		ASTM D5174 Modified				n	n				TRG	
09-08010-07	09-08010	KPA_LIQ	TOTAL U	1	TRG	SW/SD-02	ug/l	44.3183	Y		1	3.1767857	1.43072	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-08	09-08010	KPA_LIQ	TOTAL U	1	TRG	SW/SD-04	ug/l	1.12395	Y		1	0.0737586	0.01631	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-09	09-08010	KPA_LIQ	TOTAL U	1	TRG	SW/SD-05	ug/l	162.291	Y		1	11.615263	5.19929	0.06					OK		ASTM D5174 Modified				Y	n				TRG	
09-08010-01	09-08010	Ra226LC	RA-226	1	LCS	LCS	pCi/l	9.96515	Y		0.182527	1.1080891	0.48458	0.1	10.25	97.239	OK		OK		EPA 903.1	0.471	0.2		Y	n	97.2		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	Ra226LC	RA-226	1	MBL	BLANK	pCi/l	0.32762	Y		0.154309	0.1261636	0.12184	0.1					OK	INV	EPA 903.1		2.6		Y	n				MBL	Z-Score > 1.98, potential MB bias
09-08010-03	09-08010	Ra226LC	RA-226	1	DUP	L-1	pCi/l	0.61093	Y		0.31208	0.2353528	0.22729	0.1				INV	OK		EPA 903.1		0.7		Y	n		26.8		DUP	Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	Ra226LC	RA-226	1	TRG	L-1-D	pCi/l	0.51372	Y	J	0.378608	0.2642072	0.25916	0.1					OK		EPA 903.1		0.9		Y	n		15.4		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-04	09-08010	Ra226LC	RA-226	1	DO	L-1	pCi/l	0.87329	Y	J	0.334343	0.2798014	0.26582	0.1					OK		EPA 903.1		1.8	Y	Y	n				DO	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-06	09-08010	Ra226LC	RA-226	1	TRG	L-1-D	pCi/l	0.51372	Y	J	0.378608	0.2642072	0.25916	0.1					OK		EPA 903.1		0.6	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-12	09-08010	Ra226LC	RA-226	1	TRG	BM-19-F	pCi/l	0.4402	Y	J	0.329484	0.2274531	0.22315	0.1					OK		EPA 903.1		0.4	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-15	09-08010	Ra226LC	RA-226	1	TRG	BM-4-F	pCi/l	0.79977	Y	J	0.503084	0.3854223	0.37703	0.1					INV		EPA 903.1		1.2	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-11	09-08010	Ra226LC	RA-226	1	TRG	BM-7-F-D	pCi/l	0.43504	Y	J	0.323298	0.2287842	0.22461	0.1					OK		EPA 903.1		0.4	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-14	09-08010	Ra226LC	RA-226	1	TRG	DW-1	pCi/l	0.61692	Y	J	0.44169	0.3169895	0.31093	0.1					OK		EPA 903.1		0.8	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-13	09-08010	Ra226LC	RA-226	1	TRG	DW-1-F	pCi/l	1.86605	Y		0.519888	0.4700814	0.43146	0.1					INV		EPA 903.1		3.2	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08010-05	09-08010	Ra226LC	RA-226	1	TRG	L-1-F	pCi/l	0.98946	Y	J	0.438894	0.3426954	0.3281	0.1					OK		EPA 903.1		1.8	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-10	09-08010	Ra226LC	RA-226	1	TRG	RINSATE	pCi/l	0.47945	Y	J	0.300814	0.219288	0.21398	0.1					OK		EPA 903.1		0.6	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-07	09-08010	Ra226LC	RA-226	1	TRG	SW/SD-02	pCi/l	0.34222	N	U	0.398447	0.2544369	0.25212	0.1					OK		EPA 903.1		0.1	Y	n	n				TRG	MB x5 > Sample finding, Z-Score (normalized diff) < 2.58 -biased due to activity found in M
09-08010-08	09-08010	Ra226LC	RA-226	1	TRG	SW/SD-04	pCi/l	2.44665	Y		0.60292	0.5819936	0.52807	0.1					INV		EPA 903.1		3.6	n	Y	n				TRG	MB x5 < Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08010-09	09-08010	Ra226LC	RA-226	1	TRG	SW/SD-05	pCi/l	1.50822	Y		0.405552	0.3918286	0.36164	0.1					OK		EPA 903.1		2.9	Y	Y	n				TRG	MB x5 > Sample finding, Z-Score (normalized Diff) is greater than 2.58
09-08010-01	09-08010	Ra228	RA-228	1	LCS	LCS	pCi/l	15.9112	Y		0.996207	1.4774703	1.39104	0.03	18.5	85.989	OK		OK		EPA 904.0 Modified	0.944	1.5		Y	n	86.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	Ra228	RA-228	1	MBL	BLANK	pCi/l	0.61626	N		0.968927	0.4859775	0.48559	0.03					OK	OK	EPA 904.0 Modified				n	n				MBL	MB<MDA
09-08010-03	09-08010	Ra228	RA-228	1	DUP	L-1-F	pCi/l	2.73082	Y		1.592163	0.8852466	0.88111	0.03				INV	OK		EPA 904.0 Modified		0.5		Y	n		27.1		DUP	Z-Score (normalized dif.) < 1.98
09-08010-05	09-08010	Ra228	RA-228	1	DO	L-1-F	pCi/l	2.0797	Y		1.543001	0.8279599	0.8254	0.03					OK		EPA 904.0 Modified				Y	n				DO	
09-08010-12	09-08010	Ra228	RA-228	1	TRG	BM-19-F	pCi/l	0.90465	N	U	1.139866	0.5798573	0.57917	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-15	09-08010	Ra228	RA-228	1	TRG	BM-4-F	pCi/l	-0.178	N	U	1.313144	0.6060867	0.60606	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-11	09-08010	Ra228	RA-228	1	TRG	BM-7-F-D	pCi/l	0.04247	N	U	1.062987	0.4987247	0.49872	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-14	09-08010	Ra228	RA-228	1	TRG	DW-1	pCi/l	0.96102	N	U	0.973437	0.5071713	0.50628	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-13	09-08010	Ra228	RA-228	1	TRG	DW-1-F	pCi/l	0.45189	N	U	1.109941	0.5425695	0.54239	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-04	09-08010	Ra228	RA-228	1	TRG	L-1	pCi/l	2.75376	Y		1.749337	0.9701763	0.96634	0.03					OK		EPA 904.0 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08010-06	09-08010	Ra228	RA-228	1	TRG	L-1-D	pCi/l	0.76311	N	U	1.591517	0.784274	0.78391	0.03					OK		EPA 904.0 Modified		1.6		n	Y		65.8		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-10	09-08010	Ra228	RA-228	1	TRG	RINSATE	pCi/l	0.96476	N	U	1.043422	0.5398996	0.53905	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-07	09-08010	Ra228	RA-228	1	TRG	SW/SD-02	pCi/l	0.414	N	U	1.158116	0.5631974	0.56305	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-08	09-08010	Ra228	RA-228	1	TRG	SW/SD-04	pCi/l	0.38511	N	U	1.057951	0.5148627	0.51472	0.03					OK		EPA 904.0 Modified				n	Y				TRG	
09-08010-09	09-08010	Ra228	RA-228	1	TRG	SW/SD-05	pCi/l	1.00804	N	U	1.351497	0.6848577	0.68413	0.03					OK		EPA 904.0 Modified				n	n				TRG	
09-08010-01	09-08010	ThISO	TH-228	1	LCS	LCS	pCi/l	4.797	Y		0.1058	0.8946723	0.8946	0	4.879	98.31	OK		OK		EML Th-01 Modified	0.176	0.1		Y	n	98.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	ThISO	TH-230	1	LCS	LCS	pCi/l	5.342	Y		0.1143	0.9805819	0.9805	0	5.419	98.571	OK		OK		EML Th-01 Modified	0.146	0.1		Y	n	98.6		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	ThISO	TH-232	1	LCS	LCS	pCi/l	4.612	Y		0.06015	0.8648692	0.8648	0	4.879	94.519	OK		OK		EML Th-01 Modified	0.176	0.3		Y	n	94.5		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	ThISO	TH-227	1	MBL	BLANK	pCi/l	0.00212	N		0.1494	0.05015	0.05015	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	ThISO	TH-228	1	MBL	BLANK	pCi/l	-0.0085	N		0.136	0.03613	0.03613	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	ThISO	TH-230	1	MBL	BLANK	pCi/l	0.1355	N		0.1849	0.1174004	0.1174	0					OK	INV	EML Th-01 Modified				n	n				MBL	MB<MDA
09-08010-02	09-08010	ThISO	TH-232	1	MBL	BLANK	pCi/l	0.04543	N		0.0743	0.0566201	0.05662	0					OK	INV	EML Th-01 Modified				n	Y				MBL	MB<MDA
09-08010-03	09-08010	ThISO	TH-227	1	DUP	L-1-D	pCi/l	0.01795	N		0.3233	0.1151	0.1151	0				INV	OK		EML Th-01 Modified		0.3		n	Y		#####		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	ThISO	TH-228	1	DUP	L-1-D	pCi/l	0.08126	N		0.2608	0.1352001	0.1352	0				INV	OK		EML Th-01 Modified		0.3		n	Y		107.7		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	ThISO	TH-230	1	DUP	L-1-D	pCi/l	0.4096	Y		0.2764	0.2744017	0.2744	0				INV	OK		EML Th-01 Modified		0.8		Y	n		89.6		DUP	Z-Score (normalized dif.) < 1.98
09-08010-03	09-08010	ThISO	TH-232	1	DUP	L-1-D	pCi/l	-0.0317	N		0.2606	0.0291101	0.02911	0				INV	OK		EML Th-01 Modified		1.0		n	Y		370.0		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-06	09-08010	ThISO	TH-227	1	DO	L-1-D	pCi/l	-0.0205	N	U	0.3259	0.08667	0.08667	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-06	09-08010	ThISO	TH-228	1	DO	L-1-D	pCi/l	0.02436	N	U	0.3055	0.114	0.114	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-06	09-08010	ThISO	TH-230	1	DO	L-1-D	pCi/l	0.1561	N	U	0.2632	0.1738004	0.1738	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-06	09-08010	ThISO	TH-232	1	DO	L-1-D	pCi/l	0.1062	N	U	0.1737	0.1326002	0.1326	0					OK		EML Th-01 Modified				n	Y				DO	
09-08010-12	09-08010	ThISO	TH-227	1	TRG	BM-19-F	pCi/l	0.05756	N	U	0.1877	0.1002001	0.1002	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-12	09-08010	ThISO	TH-228	1	TRG	BM-19-F	pCi/l	-0.0058	N	U	0.1563	0.01172	0.01172	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-12	09-08010	ThISO	TH-230	1	TRG	BM-19-F	pCi/l	0.2648	Y		0.1565	0.199101	0.1991	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-12	09-08010	ThISO	TH-232	1	TRG	BM-19-F	pCi/l	0	N	U	0.09149	0.0086082	0.00861	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-15	09-08010	ThISO	TH-227	1	TRG	BM-4-F	pCi/l	0.1953	Y		0.1057	0.1796006	0.1796	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-15	09-08010	ThISO	TH-228	1	TRG	BM-4-F	pCi/l	0.01893	N	U	0.2295	0.08066	0.08066	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-15	09-08010	ThISO	TH-230	1	TRG	BM-4-F	pCi/l	0.2472	Y		0.2297	0.2096008	0.2096	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-15	09-08010	ThISO	TH-232	1	TRG	BM-4-F	pCi/l	-0.0065	N	U	0.176	0.013	0.013	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-227	1	TRG	BM-7-F-D	pCi/l	-0.0059	N	U	0.1601	0.01184	0.01184	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-228	1	TRG	BM-7-F-D	pCi/l	0.01097	N	U	0.2209	0.07243	0.07243	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-230	1	TRG	BM-7-F-D	pCi/l	0.1517	N	U	0.2038	0.1555004	0.1555	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-11	09-08010	ThISO	TH-232	1	TRG	BM-7-F-D	pCi/l	0.01079	N	U	0.2207	0.07128	0.07128	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-14	09-08010	ThISO	TH-227	1	TRG	DW-1	pCi/l	0.02678	N	U	0.1491	0.06569	0.06569	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-14	09-08010	ThISO	TH-228	1	TRG	DW-1	pCi/l	0.02107	N	U	0.1705	0.06581	0.06581	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-14	09-08010	ThISO	TH-230	1	TRG	DW-1	pCi/l	0.2518	Y		0.08531	0.185101	0.1851	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-14	09-08010	ThISO	TH-232	1	TRG	DW-1	pCi/l	0.0575	N	U	0.1454	0.0902601	0.09026	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-13	09-08010	ThISO	TH-227	1	TRG	DW-1-F	pCi/l	0.00612	N	U	0.2852	0.08735	0.08735	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-13	09-08010	ThISO	TH-228	1	TRG	DW-1-F	pCi/l	-0.0549	N	U	0.3234	0.0406402	0.04064	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-13	09-08010	ThISO	TH-230	1	TRG	DW-1-F	pCi/l	0.2915	Y		0.2606	0.235601	0.2356	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-13	09-08010	ThISO	TH-232	1	TRG	DW-1-F	pCi/l	-0.027	N	U	0.2601	0.0276601	0.02766	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-04	09-08010	ThISO	TH-227	1	TRG	L-1	pCi/l	0.01605	N	U	0.2889	0.1028	0.1028	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-04	09-08010	ThISO	TH-228	1	TRG	L-1	pCi/l	0.03885	N	U	0.2331	0.09929	0.09929	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-04	09-08010	ThISO	TH-230	1	TRG	L-1	pCi/l	0.1717	N	U	0.2334	0.1690005	0.169	0					OK		EML Th-01 Modified				n	n				TRG	
09-08010-04	09-08010	ThISO	TH-232	1	TRG	L-1	pCi/l	0.1105	N	U	0.2179	0.1369003	0.1369	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-05	09-08010	ThISO	TH-227	1	TRG	L-1-F	pCi/l	0.03895	N	U	0.3122	0.1258	0.1258	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-05	09-08010	ThISO	TH-228	1	TRG	L-1-F	pCi/l	0.02112	N	U	0.3319	0.1258	0.1258	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-05	09-08010	ThISO	TH-230	1	TRG	L-1-F	pCi/l	0.2912	Y		0.1823	0.2109011	0.2109	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-05	09-08010	ThISO	TH-232	1	TRG	L-1-F	pCi/l	0.1621	Y		0.1553	0.1541005	0.1541	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-10	09-08010	ThISO	TH-227	1	TRG	RINSATE	pCi/l	-0.0975	N		0.3713	0.0527505	0.05275	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-10	09-08010	ThISO	TH-228	1	TRG	RINSATE	pCi/l	0.1115	N		0.2442	0.1460002	0.146	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-10	09-08010	ThISO	TH-230	1	TRG	RINSATE	pCi/l	0.2729	Y		0.272	0.219401	0.2194	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-10	09-08010	ThISO	TH-232	1	TRG	RINSATE	pCi/l	0.02301	N		0.1891	0.0719	0.0719	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-07	09-08010	ThISO	TH-227	1	TRG	SW/SD-02	pCi/l	0.06114	N	U	0.2285	0.1107001	0.1107	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-07	09-08010	ThISO	TH-228	1	TRG	SW/SD-02	pCi/l	0.01433	N	U	0.2546	0.09183	0.09183	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-07	09-08010	ThISO	TH-230	1	TRG	SW/SD-02	pCi/l	0.3109	Y		0.1972	0.2100013	0.21	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-07	09-08010	ThISO	TH-232	1	TRG	SW/SD-02	pCi/l	-0.0256	N	U	0.2104	0.0234201	0.02342	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-08	09-08010	ThISO	TH-227	1	TRG	SW/SD-04	pCi/l	0.09273	N	U	0.16	0.1088002	0.1088	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-08	09-08010	ThISO	TH-228	1	TRG	SW/SD-04	pCi/l	0.04701	N	U	0.2491	0.1102001	0.1102	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-08	09-08010	ThISO	TH-230	1	TRG	SW/SD-04	pCi/l	0.1726	Y		0.1405	0.1415006	0.1415	0					OK		EML Th-01 Modified				Y	n				TRG	
09-08010-08	09-08010	ThISO	TH-232	1	TRG	SW/SD-04	pCi/l	0.02148	N	U	0.1197	0.05265	0.05265	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-09	09-08010	ThISO	TH-227	1	TRG	SW/SD-05	pCi/l	0.05366	N	U	0.2169	0.1046001	0.1046	0					OK		EML Th-01 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08010-09	09-08010	ThISO	TH-228	1	TRG	SW/SD-05	pCi/l	-0.0363	N	U	0.2599	0.0306001	0.0306	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-09	09-08010	ThISO	TH-230	1	TRG	SW/SD-05	pCi/l	0.1637	N	U	0.1905	0.1616005	0.1616	0					OK		EML Th-01 Modified				n	n				TRG	
09-08010-09	09-08010	ThISO	TH-232	1	TRG	SW/SD-05	pCi/l	-0.0239	N	U	0.2295	0.0243701	0.02437	0					OK		EML Th-01 Modified				n	Y				TRG	
09-08010-01	09-08010	UUISO	U-234	1	LCS	LCS	pCi/l	8.584	Y		0.0423	1.4644464	1.464	0	8.331	103.04	OK		OK		EML U-02 Modified	0.3	0.2		Y	n	103.0		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	UUISO	U-234	2	LCS	LCS	pCi/l	7.455	Y		0.07738	1.1724206	1.172	0	8.335	89.438	OK		OK		EML U-02 Modified	0.3	0.7		Y	n	89.4		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	UUISO	U-235	1	LCS	LCS	pCi/l	0.7284	Y		0.0891	0.2607181	0.2607	0					OK		EML U-02 Modified				Y	n				LCS	
09-08010-01	09-08010	UUISO	U-235	2	LCS	LCS	pCi/l	0.5091	Y		0.08928	0.1823126	0.1823	0					OK		EML U-02 Modified				Y	n				LCS	
09-08010-01	09-08010	UUISO	U-238	1	LCS	LCS	pCi/l	9.558	Y		0.04212	1.6095036	1.609	0	8.12	117.71	OK		OK		EML U-02 Modified	0.292	0.9		Y	n	117.7		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-01	09-08010	UUISO	U-238	2	LCS	LCS	pCi/l	7.658	Y		0.06641	1.1994338	1.199	0	8.125	94.254	OK		OK		EML U-02 Modified	0.292	0.4		Y	n	94.3		Y	LCS	Z-Score (normalized dif.) < 1.98
09-08010-02	09-08010	UUISO	U-234	1	MBL	BLANK	pCi/l	0.04489	N		0.08849	0.0552403	0.05524	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-234	2	MBL	BLANK	pCi/l	0.02359	N		0.07705	0.0409101	0.04091	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-235	1	MBL	BLANK	pCi/l	-0.0085	N		0.1006	0.0098981	0.0099	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-235	2	MBL	BLANK	pCi/l	0.03768	N		0.1227	0.0624202	0.06242	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-238	1	MBL	BLANK	pCi/l	0.00202	N		0.0942	0.02881	0.02881	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-02	09-08010	UUISO	U-238	2	MBL	BLANK	pCi/l	-0.0027	N		0.1101	0.03103	0.03103	0					OK	INV	EML U-02 Modified				n	Y				MBL	MB<MDA
09-08010-03	09-08010	UUISO	U-234	1	DUP	L-1	pCi/l	0.584	N		0.7913	0.8385036	0.8385	0				INV	OK		EML U-02 Modified		0.4		n	Y		73.7		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-234	2	DUP	L-1	pCi/l	0.6661	Y		0.2605	0.4022098	0.4022	0				OK	OK		EML U-02 Modified		0.2		Y	n		15.5		DUP	Z-Score (normalized dif.) < 1.98
09-08010-03	09-08010	UUISO	U-235	1	DUP	L-1	pCi/l	0	N		0.9762	0.0744225	0.07442	0				OK	OK		EML U-02 Modified		0.4		n	Y		-200.0		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-235	2	DUP	L-1	pCi/l	0.05765	N		0.3214	0.1412002	0.1412	0				INV	OK		EML U-02 Modified		0.3		n	Y		77.1		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-238	1	DUP	L-1	pCi/l	1.114	N		1.345	1.1990092	1.199	0				INV	INV		EML U-02 Modified		0.5		n	Y		98.4		DUP	Z-Score (normalized dif.) < 1.98, Both primary and duplicate are non-detect.
09-08010-03	09-08010	UUISO	U-238	2	DUP	L-1	pCi/l	0.7933	Y		0.3923	0.4511124	0.4511	0				INV	OK		EML U-02 Modified		0.4		Y	n		33.1		DUP	Z-Score (normalized dif.) < 1.98
09-08010-04	09-08010	UUISO	U-234	1	DO	L-1	pCi/l	1.265	N	U	2.493	1.584009	1.584	0					INV		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-234	2	DO	L-1	pCi/l	0.5705	Y		0.2437	0.359208	0.3592	0					OK		EML U-02 Modified				Y	n				DO	
09-08010-04	09-08010	UUISO	U-235	1	DO	L-1	pCi/l	-0.0799	N	U	2.174	0.1613004	0.1613	0					INV		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-235	2	DO	L-1	pCi/l	0.13	N	U	0.1761	0.1847008	0.1847	0					OK		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-238	1	DO	L-1	pCi/l	0.3793	N	U	1.028	0.7658017	0.7658	0					INV		EML U-02 Modified				n	Y				DO	
09-08010-04	09-08010	UUISO	U-238	2	DO	L-1	pCi/l	0.568	Y		0.2427	0.357608	0.3576	0					OK		EML U-02 Modified				Y	n				DO	
09-08010-06	09-08010	UUISO	U-234	1	TRG	L-1-D	pCi/l	0.7138	N	U	0.9672	1.0280044	1.028	0					OK		EML U-02 Modified		0.3		n	Y		55.7		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08010-06	09-08010	UUISO	U-234	2	TRG	L-1-D	pCi/l	0.6721	Y		0.2667	0.3811105	0.3811	0					OK		EML U-02 Modified		0.2		Y	n		16.4		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	UUISO	U-235	1	TRG	L-1-D	pCi/l	0.4403	N	U	1.193	0.8885019	0.8885	0					INV		EML U-02 Modified		0.6		n	Y		288.7		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08010-06	09-08010	UUISO	U-235	2	TRG	L-1-D	pCi/l	0.2428	Y		0.1645	0.2452021	0.2452	0					OK		EML U-02 Modified		0.4		Y	Y		60.5		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-06	09-08010	UUISO	U-238	1	TRG	L-1-D	pCi/l	1.006	N	U	1.644	1.2660071	1.266	0					INV		EML U-02 Modified		0.4		n	Y		90.5		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98 - Non-Detect for both findings
09-08010-06	09-08010	UUISO	U-238	2	TRG	L-1-D	pCi/l	0.6858	Y		0.1328	0.379311	0.3793	0					OK		EML U-02 Modified		0.2		Y	n		18.8		TRG	Field Duplicate: Z-Score (normalized dif.) < 1.98
09-08010-12	09-08010	UUISO	U-234	1	TRG	BM-19-F	pCi/l	14.48	Y		0.2599	2.7636731	2.763	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-12	09-08010	UUISO	U-235	1	TRG	BM-19-F	pCi/l	0.5543	Y		0.1878	0.4001068	0.4001	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-12	09-08010	UUISO	U-238	1	TRG	BM-19-F	pCi/l	10.78	Y		0.2588	2.2014683	2.201	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-15	09-08010	UUISO	U-234	1	TRG	BM-4-F	pCi/l	12.99	Y		0.4585	2.8755206	2.875	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-15	09-08010	UUISO	U-235	1	TRG	BM-4-F	pCi/l	0.5038	Y		0.4827	0.4740047	0.474	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-15	09-08010	UUISO	U-238	1	TRG	BM-4-F	pCi/l	11.83	Y		0.5078	2.6834627	2.683	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-11	09-08010	UUISO	U-234	1	TRG	BM-7-F-D	pCi/l	0.6041	Y		0.2844	0.3993081	0.3993	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-11	09-08010	UUISO	U-235	1	TRG	BM-7-F-D	pCi/l	0.1001	N	U	0.4961	0.2210004	0.221	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-11	09-08010	UUISO	U-238	1	TRG	BM-7-F-D	pCi/l	0.2851	N	U	0.3317	0.2784026	0.2784	0					OK		EML U-02 Modified				n	n				TRG	
09-08010-14	09-08010	UUISO	U-234	1	TRG	DW-1	pCi/l	0.6446	Y		0.2754	0.4065091	0.4065	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-14	09-08010	UUISO	U-235	1	TRG	DW-1	pCi/l	-0.0375	N	U	0.4428	0.0435903	0.04359	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-14	09-08010	UUISO	U-238	1	TRG	DW-1	pCi/l	0.3354	Y		0.3213	0.2958034	0.2958	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-13	09-08010	UUISO	U-234	1	TRG	DW-1-F	pCi/l	0.4348	Y		0.1683	0.334905	0.3349	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-13	09-08010	UUISO	U-235	1	TRG	DW-1-F	pCi/l	0.1402	N	U	0.3545	0.2193008	0.2193	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-13	09-08010	UUISO	U-238	1	TRG	DW-1-F	pCi/l	0.06184	N	U	0.1676	0.1240003	0.124	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-234	1	TRG	L-1-F	pCi/l	1.939	Y		1.578	1.6200206	1.62	0					INV		EML U-02 Modified				Y	n				TRG	
09-08010-05	09-08010	UUISO	U-234	2	TRG	L-1-F	pCi/l	0.3976	Y		0.3201	0.3071046	0.3071	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-05	09-08010	UUISO	U-235	1	TRG	L-1-F	pCi/l	-0.061	N	U	1.662	0.1230003	0.123	0					INV		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-235	2	TRG	L-1-F	pCi/l	0.08643	N	U	0.4285	0.1909003	0.1909	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-238	1	TRG	L-1-F	pCi/l	0.4811	N	U	1.571	0.8401024	0.8401	0					INV		EML U-02 Modified				n	Y				TRG	
09-08010-05	09-08010	UUISO	U-238	2	TRG	L-1-F	pCi/l	0.4577	Y		0.2865	0.3247057	0.3247	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-10	09-08010	UUISO	U-234	1	TRG	RINSATE	pCi/l	0.1337	N	U	0.3773	0.2044008	0.2044	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-10	09-08010	UUISO	U-235	1	TRG	RINSATE	pCi/l	-0.0121	N	U	0.3291	0.0242401	0.02424	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-10	09-08010	UUISO	U-238	1	TRG	RINSATE	pCi/l	0.4397	Y		0.3112	0.3321052	0.3321	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-07	09-08010	UUISO	U-234	1	TRG	SW/SD-02	pCi/l	19.87	Y		0.6664	4.5677668	4.567	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-07	09-08010	UUISO	U-235	1	TRG	SW/SD-02	pCi/l	1.491	Y		0.7017	0.9923199	0.9923	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-07	09-08010	UUISO	U-238	1	TRG	SW/SD-02	pCi/l	19.58	Y		0.3317	4.5097541	4.509	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-08	09-08010	UUISO	U-234	1	TRG	SW/SD-04	pCi/l	0.6099	Y		0.2606	0.3846086	0.3846	0					OK		EML U-02 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	AnalysisCode	Isotope	Run	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	Method	LCSKnownError	Z Score - Rad Only	> 5x MB contamination/Misc	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
09-08010-08	09-08010	UUISO	U-235	1	TRG	**SW/SD-04**	pCi/l	**0.1966**	**N**	**U**	0.3215	0.2435014	0.2435	0					OK		EML U-02 Modified				n	Y				TRG	
09-08010-08	09-08010	UUISO	U-238	1	TRG	**SW/SD-04**	pCi/l	**0.6168**	**Y**		0.152	0.3828088	0.3828	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-09	09-08010	UUISO	U-234	1	TRG	**SW/SD-05**	pCi/l	**61.36**	**Y**		0.7321	11.043025	11.04	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-09	09-08010	UUISO	U-235	1	TRG	**SW/SD-05**	pCi/l	**6.441**	**Y**		0.5289	2.4381509	2.438	0					OK		EML U-02 Modified				Y	n				TRG	
09-08010-09	09-08010	UUISO	U-238	1	TRG	**SW/SD-05**	pCi/l	**61.91**	**Y**		0.4269	11.123057	11.12	0					OK		EML U-02 Modified				Y	n				TRG	

Town of Tonawanda Landfill (FUSRAP)

Tree (Leaf, Trunk and Root), Groundwater and Surface Water Sampling - October 2009
Laboratory Radiological Data Qualification -July 2010
Data Reviewer: [redacted] – Chemist - (LRB-TD-EH)

Laboratory Radiological Data Qualification Summary

Four (4) separate trees (weeping willow) were sampled consisting of four (4) sample matrixes: leaf, trunk, root, soil (tree root zone), unfiltered groundwater from soil core and one (1) surface water sample. Samples were collected by USACE-Buffalo District personnel in support of US Army Corps of Engineer (USACE) remediation investigation addendum effort at the Town of Tonawanda Landfill FUSRAP Project. Samples were submitted to Eberline Analytical/Oakridge Laboratory (Oak Ridge, TN) analyzed for:

Isotopic Thorium -228, -230 and -232 - Alpha Spectroscopy – EML Th-01 Modified
Isotopic Uranium – 234, -235 and –238 - Alpha Spectroscopy – EML U-02 Modified
Radium -226 – Lucas Cell/Alpha Scintillation - EPA Method 903.1 Modified
Radium -228 – Gas Proportional Counting - EPA 904.0 Modified

A data qualification was performed to assess the quality of the soil and water sampling results. These assessments was to demonstrate whether environmental data generated are appropriate for their intended purpose, are technically defensible, and are of known and acceptable precision and accuracy.

Analytical data generated by the offsite lab has undergone a process of data verification and review. The analytical data was qualified by utilizing the guidance presented in MARLAP (NUREG-1576) guidance where practicable and in USACE Kansas City and St. Louis District Radionuclide Data Quality Evaluation Guidance for Alpha and Gamma Spectroscopy (USACE, 2002).

The overall quality of the sampling information meets or exceeds the established project objectives. Data as presented, has been qualified as usable (100%). .

Data produced for this project demonstrates that it can with stand scientific scrutiny, is appropriate for its intended purpose and is of known and acceptable precision, and accuracy. Data integrity has been documented through proper implementation of Quality Assurance and Quality Control measures.

Worksheets for the data qualification are provided.

Final qualifiers are as follows:

J -Estimated values are qualified.
R -Rejected values qualified.
U -Non-detect parameters are qualified.

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LSCPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01034-01	10-01034	RA-226	LCS	LCS	pCi/l	11.2870932	Y		0.2896328	1.265349824	0.571949	0.1	10.069	112.09	OK		OK		1/12/2010		EPA 903.1	0.46319	0.9		Y	n	112.1		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	RA-226	MBL	BLANK	pCi/l	0.05370675	N		0.2883458	0.164131907	0.164044	0.1					OK	INV	1/12/2010		EPA 903.1				n	Y				MBL	MB<MDA
10-01034-03	10-01034	RA-226	DUP	TTLF-TREE-4-SW	pCi/l	1.12326047	Y		0.2656	0.276965186	0.253165	0.1				OK	OK		10/15/2009	19.301	EPA 903.1		0.4		Y	n		19.3		DUP	Z-Score (normalized dif.) < 1.98
10-01034-04	10-01034	RA-226	DO	TTLF-TREE-4-SW	pCi/l	1.36321873	Y		0.6414824	0.506511132	0.487822	0.1					INV		10/15/2009		EPA 903.1				Y	n				DO	
10-01034-05	10-01034	RA-226	TRG	TTLF-TREE-4-GW	pCi/l	7.82463737	Y		0.5995615	1.130893972	0.8165	0.1					INV		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-06	10-01034	RA-226	TRG	TREE-1-GW	pCi/l	1.56010473	Y		0.4843339	0.413460979	0.382898	0.1					OK		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-07	10-01034	RA-226	TRG	TREE-3-GW	pCi/l	6.8611834	Y		1.1143923	1.257867504	1.054264	0.1					INV		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-08	10-01034	RA-226	TRG	TREE-2-GW	pCi/l	3.25527591	Y		0.6675917	0.662030608	0.576469	0.1					INV		10/15/2009		EPA 903.1				Y	n				TRG	
10-01034-01	10-01034	RA-228	LCS	LCS	pCi/l	17.1371458	Y		1.2558566	1.268836547	1.149933	0.03129	17.294	99.094	OK		OK		1/12/2010		EPA 904.0 Modified	0.88198	0.1		Y	n	99.1		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	RA-228	MBL	BLANK	pCi/l	0.43511838	N		1.2666529	0.615071755	0.614921	0.03129					OK	OK	1/12/2010		EPA 904.0 Modified				n	Y				MBL	MB<MDA
10-01034-03	10-01034	RA-228	DUP	TTLF-TREE-4-SW	pCi/l	0.62945167	N	U	1.1307249	0.562333707	0.561989	0.03129				INV	OK		10/15/2009		EPA 904.0 Modified		0.7		n	n		65.1		DUP	Z-Score (normalized dif.) < 1.98
10-01034-04	10-01034	RA-228	DO	TTLF-TREE-4-SW	pCi/l	1.23733076	Y		1.2064825	0.62874064	0.627547	0.03129					OK		10/15/2009		EPA 904.0 Modified				Y	n				DO	
10-01034-05	10-01034	RA-228	TRG	TTLF-TREE-4-GW	pCi/l	0.49892395	N	U	0.9803662	0.484283066	0.484031	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01034-06	10-01034	RA-228	TRG	TREE-1-GW	pCi/l	0.09840214	N	U	0.9235076	0.436634802	0.436624	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01034-07	10-01034	RA-228	TRG	TREE-3-GW	pCi/l	0.36755349	N	U	0.9166607	0.447985028	0.447837	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01034-08	10-01034	RA-228	TRG	TREE-2-GW	pCi/l	0.62143543	N	U	0.8002763	0.408862554	0.4084	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01034-01	10-01034	TH-228	LCS	LCS	pCi/l	4.901	Y		0.03958	0.959770389	0.9597	0.00237	4.6789	104.75	OK		OK		1/12/2010		EML Th-01 Modified	0.16844	0.2		Y	n	104.7		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	TH-230	LCS	LCS	pCi/l	4.526	Y		0.08017	0.89826414	0.8982	0.00237	5.2997	85.401	OK		OK		1/12/2010		EML Th-01 Modified	0.14309	0.9		Y	n	85.4		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	TH-232	LCS	LCS	pCi/l	4.742	Y		0.08003	0.93356774 5	0.9335	0.00237	4.6789	101.35	OK		OK		1/12/2010		EML Th-01 Modified	0.16844	0.1		Y	n	101.3		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	TH-228	MBL	BLANK	pCi/l	0.02745	N		0.1664	0.07135003	0.07135	0.00237					OK	INV	1/12/2010		EML Th-01 Modified				n	Y				MBL	MB<MDA
10-01034-02	10-01034	TH-230	MBL	BLANK	pCi/l	0.07902	N		0.09092	0.077980225	0.07798	0.00237					OK	INV	1/12/2010		EML Th-01 Modified				n	n				MBL	MB<MDA
10-01034-02	10-01034	TH-232	MBL	BLANK	pCi/l	0.02522	N		0.1011	0.049180036	0.04918	0.00237					OK	INV	1/12/2010		EML Th-01 Modified				n	Y				MBL	MB<MDA
10-01034-03	10-01034	TH-228	DUP	TREE-1-GW	pCi/l	5.845	Y		0.5323	2.239042914	2.239	0.00237				INV	OK		10/15/2009	55.659	EML Th-01 Modified		0.9		Y	n		55.7		DUP	Z-Score (normalized dif.) < 1.98
10-01034-03	10-01034	TH-230	DUP	TREE-1-GW	pCi/l	8.698	Y		0.3754	3.033070153	3.033	0.00237				INV	OK		10/15/2009	28.639	EML Th-01 Modified		0.5		Y	n		28.6		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-03	10-01034	TH-232	DUP	TREE-1-GW	pCi/l	4.088	Y		0.3747	1.657028365	1.657	0.00237				OK	OK		10/15/2009	9.7056	EML Th-01 Modified		0.2		Y	n		9.7		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-04	10-01034	TH-228	TRG	TTLF-TREE-4-SW	pCi/l	0.08661	N	U	0.2187	0.133000159	0.133	0.00237					OK		10/15/2009		EML Th-01 Modified				n	Y				TRG	
10-01034-04	10-01034	TH-230	TRG	TTLF-TREE-4-SW	pCi/l	0.2364	Y		0.08948	0.185100849	0.1851	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-04	10-01034	TH-232	TRG	TTLF-TREE-4-SW	pCi/l	0.08393	N	U	0.2013	0.119700166	0.1197	0.00237					OK		10/15/2009		EML Th-01 Modified				n	Y				TRG	
10-01034-05	10-01034	TH-228	TRG	TTLF-TREE-4-GW	pCi/l	3.351	Y		0.1458	0.962632808	0.9626	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-05	10-01034	TH-230	TRG	TTLF-TREE-4-GW	pCi/l	3.388	Y		0.08471	0.946134121	0.9461	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-05	10-01034	TH-232	TRG	TTLF-TREE-4-GW	pCi/l	2.776	Y		0.08456	0.815026593	0.815	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-06	10-01034	TH-228	DO	TREE-1-GW	pCi/l	3.3	Y		0.967	1.813016893	1.813	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				DO	
10-01034-06	10-01034	TH-230	DO	TREE-1-GW	pCi/l	6.519	Y		0.3322	2.921040918	2.921	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				DO	
10-01034-06	10-01034	TH-232	DO	TREE-1-GW	pCi/l	4.505	Y		0.3316	2.184026135	2.184	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				DO	
10-01034-07	10-01034	TH-228	TRG	TREE-3-GW	pCi/l	29.65	Y		0.4221	9.69125513	9.691	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-07	10-01034	TH-230	TRG	TREE-3-GW	pCi/l	44.95	Y		0.4226	14.30039738	14.3	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-07	10-01034	TH-232	TRG	TREE-3-GW	pCi/l	25.37	Y		0.4952	8.321217543	8.321	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-08	10-01034	TH-228	TRG	TREE-2-GW	pCi/l	10.07	Y		0.8356	4.104069492	4.104	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-08	10-01034	TH-230	TRG	TREE-2-GW	pCi/l	11.04	Y		0.8366	4.377078315	4.377	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-08	10-01034	TH-232	TRG	TREE-2-GW	pCi/l	10.25	Y		0.7886	4.101072051	4.101	0.00237					OK		10/15/2009		EML Th-01 Modified				Y	n				TRG	
10-01034-01	10-01034	U-234	LCS	LCS	pCi/l	8.392	Y		0.03814	1.422439249	1.422	0.00421	8.1941	102.42	OK		OK		1/12/2010		EML U-02 Modified	0.29499	0.1		Y	n	102.4		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	U-235	LCS	LCS	pCi/l	0.6155	Y		0.09521	0.229114668	0.2291	0.00421					OK		1/12/2010		EML U-02 Modified				Y	n				LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-01	10-01034	U-238	LCS	LCS	pCi/l	8.196	Y		0.06546	1.392428001	1.392	0.00421	7.9871	102.61	OK		OK		1/12/2010		EML U-02 Modified	0.28754	0.1		Y	n	102.6		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01034-02	10-01034	U-234	MBL	BLANK	pCi/l	-0.004961	N		0.0782	0.007053031	0.007053	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01034-02	10-01034	U-235	MBL	BLANK	pCi/l	0.02986	N		0.09647	0.051800153	0.0518	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01034-02	10-01034	U-238	MBL	BLANK	pCi/l	0.02904	N		0.03848	0.041290181	0.04129	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01034-03	10-01034	U-234	DUP	TREE-3-GW	pCi/l	133.8	Y		0.704	29.8153267	29.81	0.00421				INV	OK		10/15/2009	26.109	EML U-02 Modified		0.8		Y	n		26.1		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-03	10-01034	U-235	DUP	TREE-3-GW	pCi/l	9.096	Y		0.6712	2.905252629	2.905	0.00421				OK	OK		10/15/2009	4.7381	EML U-02 Modified		0.1		Y	n		4.7		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-03	10-01034	U-238	DUP	TREE-3-GW	pCi/l	127.6	Y		0.5417	28.4750725	28.47	0.00421				OK	OK		10/15/2009	16.915	EML U-02 Modified		0.6		Y	n		16.9		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01034-04	10-01034	U-234	TRG	TTLF-TREE-4-SW	pCi/l	10.38	Y		0.3052	2.012474966	2.012	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-04	10-01034	U-235	TRG	TTLF-TREE-4-SW	pCi/l	0.5828	Y		0.258	0.336708948	0.3367	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-04	10-01034	U-238	TRG	TTLF-TREE-4-SW	pCi/l	12.21	Y		0.09242	2.298575405	2.298	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-05	10-01034	U-234	TRG	TTLF-TREE-4-GW	pCi/l	163.8	Y		0.7591	39.99595101	39.99	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-05	10-01034	U-235	TRG	TTLF-TREE-4-GW	pCi/l	13.49	Y		0.4156	4.329372876	4.329	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-05	10-01034	U-238	TRG	TTLF-TREE-4-GW	pCi/l	163.1	Y		1.022	39.83592396	39.83	0.00421					INV		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-06	10-01034	U-234	TRG	TREE-1-GW	pCi/l	20.09	Y		0.2952	3.846930775	3.846	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-06	10-01034	U-235	TRG	TREE-1-GW	pCi/l	2.171	Y		0.3011	0.789152981	0.7891	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-06	10-01034	U-238	TRG	TREE-1-GW	pCi/l	20.31	Y		0.1201	3.880942936	3.88	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LSCPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01034-07	10-01034	U-234	DO	TREE-3-GW	pCi/l	102.9	Y		0.2146	21.26441742	21.26	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01034-07	10-01034	U-235	DO	TREE-3-GW	pCi/l	8.675	Y		0.4563	2.540262803	2.54	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01034-07	10-01034	U-238	DO	TREE-3-GW	pCi/l	107.7	Y		0.2137	22.22463008	22.22	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01034-08	10-01034	U-234	TRG	TREE-2-GW	pCi/l	35.77	Y		0.1262	6.570727541	6.569	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-08	10-01034	U-235	TRG	TREE-2-GW	pCi/l	3.26	Y		0.3508	1.037090904	1.037	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01034-08	10-01034	U-238	TRG	TREE-2-GW	pCi/l	35.21	Y		0.2831	6.474698698	6.473	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-01	10-01035	RA-226	LCS	LCS	pCi/g	11.422941	Y		0.2831013	1.275756816	0.568084	0.1	10.014	114.07	OK		OK		1/12/2010		EPA Method 903.1 Modifi	0.46063	1.0		Y	n	114.1		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	RA-226	MBL	BLANK	pCi/g	0.16293348	N		0.1844963	0.117742787	0.11661	0.1					OK	INV	1/12/2010		EPA Method 903.1 Modified				n	n				MBL	MB<MDA
10-01035-03	10-01035	RA-226	DUP	TTLF-4-R	pCi/g	0.10672847	N		0.2209842	0.131915228	0.131483	0.1				OK	OK		10/15/2009	17.732	EPA Method 903.1 Modified		0.1		n	Y		17.7		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-04	10-01035	RA-226	DO	TTLF-4-R	pCi/g	0.12749529	N	U	0.1979043	0.121036702	0.120363	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	n				DO	
10-01035-05	10-01035	RA-226	TRG	TTLF-4-T	pCi/g	0.0745008	N	U	0.2825873	0.164101099	0.163932	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-06	10-01035	RA-226	TRG	TTLF-3-T	pCi/g	0.14979093	N	U	0.1691671	0.109301978	0.108271	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	n				TRG	
10-01035-07	10-01035	RA-226	TRG	TTLF-3-R	pCi/g	0.06038337	N	U	0.4102474	0.23078835	0.230709	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-08	10-01035	RA-226	TRG	TTLF-TREE-3-S	pCi/g	0.18247505	N	U	0.2348996	0.147724663	0.146593	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	n				TRG	
10-01035-09	10-01035	RA-226	TRG	TTLF-TREE-4-S	pCi/g	0.39156492	Y		0.2319453	0.16356805	0.158812	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-10	10-01035	RA-226	TRG	TTLF-TREE-4-L	pCi/g	0.00723669	N	U	0.0291118	0.01664784	0.016632	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-11	10-01035	RA-226	TRG	TTLF-TREE-3-L	pCi/g	0.14731058	Y	U	0.1115102	0.077125213	0.075705	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-12	10-01035	RA-226	TRG	TTLF-TREE-2-S	pCi/g	0.35827623	Y			0.148979204	0.144607	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-13	10-01035	RA-226	TRG	TTLF-TREE-1-S	pCi/g	0.15451498	Y			0.152977634	0.152195	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-14	10-01035	RA-226	TRG	TTLF-1-R	pCi/g	0.17060085	Y			0.084810381	0.083077	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-15	10-01035	RA-226	TRG	TTLF-TREE-1-T	pCi/g	0.06235953	Y			0.122383665	0.122225	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	Y				TRG	
10-01035-16	10-01035	RA-226	TRG	TTLF-2-T	pCi/g	0.02405575	Y			0.128282444	0.12826	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	Y				TRG	
10-01035-17	10-01035	RA-226	TRG	TTLF-2-R	pCi/g	0.13226867	N	U	0.2231672	0.135436046	0.134789	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-18	10-01035	RA-226	TRG	TTLF-TREE-2-L	pCi/g	0.00895022	N	U	0.1276702	0.071047095	0.071041	0.1					OK		10/15/2009		EPA Method 903.1 Modified				n	Y				TRG	
10-01035-19	10-01035	RA-226	TRG	TTLF-TREE-1-L	pCi/g	0.3492314	Y		0.1526185	0.13157973	0.126861	0.1					OK		10/15/2009		EPA Method 903.1 Modified				Y	n				TRG	
10-01035-01	10-01035	RA-228	LCS	LCS	pCi/g	14.6919806	Y		1.1977057	1.4591068	1.384778	0.03129	17.595	83.501	OK		OK		1/12/2010		EPA 904.0 Modified	0.89735	1.7		Y	n	83.5		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	RA-228	MBL	BLANK	pCi/g	0.09971951	N		0.9797248	0.46356145	0.463551	0.03129					OK	OK	1/12/2010		EPA 904.0 Modified				n	Y				MBL	MB<MDA
10-01035-03	10-01035	RA-228	DUP	TTLF-4-R	pCi/g	0.65108355	N		0.8677577	0.441738515	0.441268	0.03129				INV	OK		10/15/2009		EPA 904.0 Modified		0.9		n	n		154.4		DUP	Z-Score (normalized dif.) < 1.98
10-01035-04	10-01035	RA-228	DO	TTLF-4-R	pCi/g	0.08383346	N	U	1.04904	0.49446678	0.49446	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				DO	
10-01035-05	10-01035	RA-228	TRG	TTLF-4-T	pCi/g	0.36216052	N		0.6972081	0.345043771	0.344858	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-06	10-01035	RA-228	TRG	TTLF-3-T	pCi/g	0.30369798	N	U	0.6281629	0.309493504	0.309348	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-07	10-01035	RA-228	TRG	TTLF-3-R	pCi/g	0.61314031	N		0.8251293	0.420249112	0.419811	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-08	10-01035	RA-228	TRG	TTLF-TREE-3-S	pCi/g	0.5183776	N	U	1.3802021	0.672443134	0.672247	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-09	10-01035	RA-228	TRG	TTLF-TREE-4-S	pCi/g	0.50456832	N	U	1.4363437	0.698034259	0.697856	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-10	10-01035	RA-228	TRG	TTLF-TREE-4-L	pCi/g	0.39696094	N		0.7002449	0.348586752	0.348365	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-11	10-01035	RA-228	TRG	TTLF-TREE-3-L	pCi/g	0.21144702	N	U	0.5988558	0.291083651	0.291008	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-12	10-01035	RA-228	TRG	TTLF-TREE-2-S	pCi/g	1.69148771	Y		1.3854388	0.73679657	0.734893	0.03129					OK		10/15/2009		EPA 904.0 Modified				Y	n				TRG	
10-01035-13	10-01035	RA-228	TRG	TTLF-TREE-1-S	pCi/g	5.16425644	Y		1.0505003	0.732780177	0.714737	0.03129					OK		10/15/2009		EPA 904.0 Modified				Y	n				TRG	
10-01035-14	10-01035	RA-228	TRG	TTLF-1-R	pCi/g	0.72535566	N		0.9901802	0.501078872	0.500564	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-15	10-01035	RA-228	TRG	TTLF-TREE-1-T	pCi/g	-0.02868835	N	U	1.1024977	0.513813496	0.513813	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-16	10-01035	RA-228	TRG	TTLF-2-T	pCi/g	0.20818106	N	U	0.9827368	0.470282078	0.470237	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-17	10-01035	RA-228	TRG	TTLF-2-R	pCi/g	0.97445227	N		1.1631565	0.59105982	0.590273	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-18	10-01035	RA-228	TRG	TTLF-TREE-2-L	pCi/g	0.56392272	N		0.6994126	0.357892962	0.357458	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	n				TRG	
10-01035-19	10-01035	RA-228	TRG	TTLF-TREE-1-L	pCi/g	0.1545576	N	U	0.7184816	0.34418727	0.344153	0.03129					OK		10/15/2009		EPA 904.0 Modified				n	Y				TRG	
10-01035-01	10-01035	U-234	LCS	LCS	pCi/g	7.954	Y		0.09302	1.310428327	1.31	0.00421	8.2322	96.621	OK		OK		1/12/2010		EML U-02 Modified	0.29636	0.2		Y	n	96.6		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	U-235	LCS	LCS	pCi/g	0.4135	Y		0.04384	0.175608637	0.1756	0.00421					OK		1/12/2010		EML U-02 Modified				Y	n				LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	U-238	LCS	LCS	pCi/g	7.942	Y		0.06098	1.308427689	1.308	0.00421	8.0243	98.975	OK		OK		1/12/2010		EML U-02 Modified	0.28887	0.1		Y	n	99.0		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	U-234	MBL	BLANK	pCi/g	0.06734	N		0.07748	0.065730612	0.06573	0.00421					OK	INV	1/12/2010		EML U-02 Modified		1		n	n				MBL	MB<MDA
10-01035-02	10-01035	U-235	MBL	BLANK	pCi/g	0.03566	N		0.04724	0.050690223	0.05069	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01035-02	10-01035	U-238	MBL	BLANK	pCi/g	0.01439	N		0.03813	0.028850064	0.02885	0.00421					OK	INV	1/12/2010		EML U-02 Modified				n	Y				MBL	MB<MDA
10-01035-03	10-01035	U-234	DUP	TTLF-4-R	pCi/g	0.07777	Y		0.05201	0.061370874	0.06137	0.00421				OK	OK		10/15/2009	16.494	EML U-02 Modified		0.1		Y	n		16.5		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-03	10-01035	U-235	DUP	TTLF-4-R	pCi/g	0.04214	Y		0.03722	0.049020321	0.04902	0.00421				OK	OK		10/15/2009	13.209	EML U-02 Modified		0.1		Y	Y		13.2		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-03	10-01035	U-238	DUP	TTLF-4-R	pCi/g	0.0661	Y		0.05178	0.056450687	0.05645	0.00421				OK	OK		10/15/2009	18.991	EML U-02 Modified		0.2		Y	n		19.0		DUP	Z-Score (normalized dif.) < 1.98, RPD < 30%
10-01035-04	10-01035	U-234	DO	TTLF-4-R	pCi/g	0.09175	Y		0.07386	0.074401004	0.0744	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-04	10-01035	U-235	DO	TTLF-4-R	pCi/g	0.0481	N	U	0.07762	0.059560345	0.05956	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				DO	
10-01035-04	10-01035	U-238	DO	TTLF-4-R	pCi/g	0.07997	Y		0.06265	0.06835083	0.06835	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				DO	
10-01035-05	10-01035	U-234	TRG	TTLF-4-T	pCi/g	0.05739	Y		0.05427	0.053990541	0.05399	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-05	10-01035	U-235	TRG	TTLF-4-T	pCi/g	0.02682	N	U	0.06694	0.041950152	0.04195	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Certainty > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01035-05	10-01035	U-238	TRG	TTLF-4-T	pCi/g	0.009819	N	U	0.05403	0.024050036	0.02405	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-06	10-01035	U-234	TRG	TTLF-3-T	pCi/g	0	N	U	0.03211	0.003087214	0.003087	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-06	10-01035	U-235	TRG	TTLF-3-T	pCi/g	0.01495	N	U	0.03961	0.029980066	0.02998	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-06	10-01035	U-238	TRG	TTLF-3-T	pCi/g	0.01206	N	U	0.03197	0.024200053	0.0242	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-07	10-01035	U-234	TRG	TTLF-3-R	pCi/g	0.06266	N	U	0.06815	0.057040611	0.05704	0.00421					OK		10/15/2009		EML U-02 Modified				n	n				TRG	
10-01035-07	10-01035	U-235	TRG	TTLF-3-R	pCi/g	0.02577	N	U	0.06431	0.040290146	0.04029	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-07	10-01035	U-238	TRG	TTLF-3-R	pCi/g	0.01137	N	U	0.03012	0.02279005	0.02279	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-08	10-01035	U-234	TRG	TTLF-TREE-3-S	pCi/g	5.242	Y		0.0632	0.938759685	0.9385	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-08	10-01035	U-235	TRG	TTLF-TREE-3-S	pCi/g	0.4209	Y		0.09152	0.181708648	0.1817	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-08	10-01035	U-238	TRG	TTLF-TREE-3-S	pCi/g	4.916	Y		0.06293	0.88934108	0.8891	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-09	10-01035	U-234	TRG	TTLF-TREE-4-S	pCi/g	11.33	Y		0.0858	1.832621452	1.832	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-09	10-01035	U-235	TRG	TTLF-TREE-4-S	pCi/g	0.9128	Y		0.1058	0.288225644	0.2882	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-09	10-01035	U-238	TRG	TTLF-TREE-4-S	pCi/g	10.87	Y		0.07672	1.764594065	1.764	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-10	10-01035	U-234	TRG	TTLF-TREE-4-L	pCi/g	0.08861	Y		0.05486	0.062981106	0.06298	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-10	10-01035	U-235	TRG	TTLF-TREE-4-L	pCi/g	-0.002146	N	U	0.05765	0.004304009	0.004304	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-10	10-01035	U-238	TRG	TTLF-TREE-4-L	pCi/g	0.01691	N	U	0.05463	0.029340086	0.02934	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-11	10-01035	U-234	TRG	TTLF-TREE-3-L	pCi/g	0.04724	Y		0.02087	0.039160505	0.03916	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-11	10-01035	U-235	TRG	TTLF-TREE-3-L	pCi/g	0	N	U	0.02574	0.002012395	0.002012	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-11	10-01035	U-238	TRG	TTLF-TREE-3-L	pCi/g	0.0392	Y		0.02078	0.035510384	0.03551	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-12	10-01035	U-234	TRG	TTLF-TREE-2-S	pCi/g	1.741	Y		0.04709	0.441260937	0.4412	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-12	10-01035	U-235	TRG	TTLF-TREE-2-S	pCi/g	0.1315	Y		0.05809	0.109301403	0.1093	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-12	10-01035	U-238	TRG	TTLF-TREE-2-S	pCi/g	2.035	Y		0.04688	0.490774856	0.4907	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-13	10-01035	U-234	TRG	TTLF-TREE-1-S	pCi/g	1.183	Y		0.1367	0.343836107	0.3438	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-13	10-01035	U-235	TRG	TTLF-TREE-1-S	pCi/g	0.04324	N	U	0.1605	0.078090212	0.07809	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-13	10-01035	U-238	TRG	TTLF-TREE-1-S	pCi/g	1.119	Y		0.1053	0.330133646	0.3301	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-14	10-01035	U-234	TRG	TTLF-1-R	pCi/g	0.07645	N	U	0.1021	0.068030762	0.06803	0.00421					OK		10/15/2009		EML U-02 Modified				n	n				TRG	
10-01035-14	10-01035	U-235	TRG	TTLF-1-R	pCi/g	0.01789	N	U	0.08788	0.039500072	0.0395	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-14	10-01035	U-238	TRG	TTLF-1-R	pCi/g	0.04375	Y		0.02899	0.044190384	0.04419	0.00421					OK		10/15/2009		EML U-02 Modified				Y	Y				TRG	
10-01035-15	10-01035	U-234	TRG	TTLF-TREE-1-T	pCi/g	0.03297	N	U	0.05322	0.040830236	0.04083	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-15	10-01035	U-235	TRG	TTLF-TREE-1-T	pCi/g	0.02141	N	U	0.08582	0.041640098	0.04164	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-15	10-01035	U-238	TRG	TTLF-TREE-1-T	pCi/g	0.02888	N	U	0.06927	0.040980181	0.04098	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-16	10-01035	U-234	TRG	TTLF-2-T	pCi/g	0.06226	N	U	0.06773	0.056650607	0.05665	0.00421					OK		10/15/2009		EML U-02 Modified				n	n				TRG	
10-01035-16	10-01035	U-235	TRG	TTLF-2-T	pCi/g	0.06044	N	U	0.09074	0.063870507	0.06387	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-16	10-01035	U-238	TRG	TTLF-2-T	pCi/g	0.06392	Y		0.06055	0.056320644	0.05632	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-17	10-01035	U-234	TRG	TTLF-2-R	pCi/g	0.03995	N	U	0.06838	0.046620304	0.04662	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-17	10-01035	U-235	TRG	TTLF-2-R	pCi/g	0.05169	N	U	0.07574	0.057350413	0.05735	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-17	10-01035	U-238	TRG	TTLF-2-R	pCi/g	0.04172	N	U	0.06113	0.046290334	0.04629	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-18	10-01035	U-234	TRG	TTLF-TREE-2-L	pCi/g	0.04004	Y		0.03786	0.037600378	0.0376	0.00421					OK		10/15/2009		EML U-02 Modified				Y	n				TRG	
10-01035-18	10-01035	U-235	TRG	TTLF-TREE-2-L	pCi/g	0.02045	N	U	0.0271	0.029060128	0.02906	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-18	10-01035	U-238	TRG	TTLF-TREE-2-L	pCi/g	0.03161	N	U	0.0377	0.033430265	0.03343	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-19	10-01035	U-234	TRG	TTLF-TREE-1-L	pCi/g	0.01476	N	U	0.05914	0.028690067	0.02869	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-19	10-01035	U-235	TRG	TTLF-TREE-1-L	pCi/g	0.008065	N	U	0.06551	0.025160023	0.02516	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-19	10-01035	U-238	TRG	TTLF-TREE-1-L	pCi/g	0.00148	N	U	0.06842	0.021100001	0.0211	0.00421					OK		10/15/2009		EML U-02 Modified				n	Y				TRG	
10-01035-01	10-01035	TH-228	LCS	LCS	pCi/g	5.096	Y		0.09563	0.9822	0.982274	0.00237	4.6975	108.48	OK		OK		1/12/2010		EML Th-01 Modified	0.16911	**0.4**		Y	n	108.5		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	TH-230	LCS	LCS	pCi/g	4.552	Y		0.09575	0.8939	0.893965	0.00237	5.3198	85.566	OK		OK		1/12/2010		EML Th-01 Modified	0.14364	**0.8**		Y	n	85.6		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-01	10-01035	TH-232	LCS	LCS	pCi/g	5.112	Y		0.06732	0.9844	0.984475	0.00237	4.6975	108.82	OK		OK		1/12/2010		EML Th-01 Modified	0.16911	**0.4**		Y	n	108.8		Y	LCS	Z-Score (normalized dif.) < 1.98, Recovery withing 75-125%
10-01035-02	10-01035	TH-228	MBL	BLANK	pCi/g	0.01684	N		0.1934	0.07639	0.07639	0.00237					OK	INV	1/12/2010		EML Th-01 Modified									**MBL**	MB<MDA
10-01035-02	10-01035	TH-230	MBL	BLANK	pCi/g	0.03212	N		0.1717	0.07542	0.07542	0.00237					OK	INV	1/12/2010		EML Th-01 Modified									**MBL**	MB<MDA
10-01035-02	10-01035	TH-232	MBL	BLANK	pCi/g	-0.009145	N		0.107	0.01073	0.01073	0.00237					OK	INV	1/12/2010		EML Th-01 Modified									**MBL**	MB<MDA
10-01035-03	10-01035	TH-228	DUP	TTLF-4-R	pCi/g	0.04048	N		0.08648	0.05769	0.05769	0.00237				INV	OK		10/15/2009	69.822	EML Th-01 Modified		**0.2**		n	Y		**69.8**		DUP	Z-Score (normalized dif.) < 1.98. Primary and Lab-Dup are non-dete
10-01035-03	10-01035	TH-230	DUP	TTLF-4-R	pCi/g	0.03857	N		0.07775	0.05128	0.05128	0.00237				OK	OK		10/15/2009	7.505	EML Th-01 Modified		**0.0**		n	Y		**7.5**		DUP	Z-Score (normalized dif.) < 1.98. Primary and Lab-Dup are non-dete
10-01035-03	10-01035	TH-232	DUP	TTLF-4-R	pCi/g	0	N		0.03835	0.003692008	0.003692	0.00237				OK	OK		10/15/2009	0	EML Th-01 Modified		**0.6**		n	Y		**200.0**		DUP	Z-Score (normalized dif.) < 1.98. Primary and Lab-Dup are non-dete
10-01035-04	10-01035	TH-228	DO	TTLF-4-R	pCi/g	0.01953	N	U	0.1388	0.06313	0.06313	0.00237					OK		10/15/2009		EML Th-01 Modified									DO	
10-01035-04	10-01035	TH-230	DO	TTLF-4-R	pCi/g	0.03578	N	U	0.1	0.05492	0.05492	0.00237					OK		10/15/2009		EML Th-01 Modified									DO	
10-01035-04	10-01035	TH-232	DO	TTLF-4-R	pCi/g	0.02556	N	U	0.08255	0.04447	0.04447	0.00237					OK		10/15/2009		EML Th-01 Modified									DO	
10-01035-05	10-01035	TH-228	TRG	TTLF-4-T	pCi/g	0.007462	N	U	0.1056	0.04457	0.04457	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-05	10-01035	TH-230	TRG	TTLF-4-T	pCi/g	0.041	N	U	0.08315	0.04977	0.04977	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-05	10-01035	TH-232	TRG	TTLF-4-T	pCi/g	0.008917	N	U	0.04908	0.02187	0.02187	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	

InternalID	InternalWorkOrder	Isotope	SampleType	ClientID	ReportUnits	Result	Detect	Qualified Flag	MDA	CSU	Uncertainty	TPUFactor	LSCKnown	LCSPercentR	LCSFlag	RPDFlag	MDAFLag	BlankFlag	SampleDate	RPD_Value	Method	LCSKnownError	Z Score - Rad Only	MB > Primary Finding	Detected	Cetainity > then Result	PERCENT RECOVERY	RPD	LCS Spike Amt 5x > DL (MDA	SampleType	Comment
10-01035-06	10-01035	TH-228	TRG	TTLF-3-T	pCi/g	0.02622	N	U	0.06421	0.03858	0.03858	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-06	10-01035	TH-230	TRG	TTLF-3-T	pCi/g	0.02072	N	U	0.0497	0.0295	0.0295	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-06	10-01035	TH-232	TRG	TTLF-3-T	pCi/g	0.01379	N	U	0.04455	0.02398	0.02398	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-07	10-01035	TH-228	TRG	TTLF-3-R	pCi/g	0.02113	N	U	0.1519	0.06995	0.06995	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-07	10-01035	TH-230	TRG	TTLF-3-R	pCi/g	0.1521	Y		0.09558	0.1031	0.103101	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-07	10-01035	TH-232	TRG	TTLF-3-R	pCi/g	-0.0003003	N	U	0.1081	0.03187	0.03187	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-08	10-01035	TH-228	TRG	TTLF-TREE-3-S	pCi/g	0.5746	Y		0.1262	0.2191	0.219104	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-08	10-01035	TH-230	TRG	TTLF-TREE-3-S	pCi/g	1.209	Y		0.07888	0.3406	0.340612	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-08	10-01035	TH-232	TRG	TTLF-TREE-3-S	pCi/g	0.7603	Y		0.0707	0.2467	0.246707	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-09	10-01035	TH-228	TRG	TTLF-TREE-4-S	pCi/g	0.6149	Y		0.1051	0.2405	0.240504	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-09	10-01035	TH-230	TRG	TTLF-TREE-4-S	pCi/g	0.6524	Y		0.0402	0.2372	0.237205	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-09	10-01035	TH-232	TRG	TTLF-TREE-4-S	pCi/g	0.482	Y		0.06917	0.1962	0.196203	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-10	10-01035	TH-228	TRG	TTLF-TREE-4-L	pCi/g	0.01077	N	U	0.07194	0.03248	0.03248	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-10	10-01035	TH-230	TRG	TTLF-TREE-4-L	pCi/g	0.01608	N	U	0.07915	0.03539	0.03539	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-10	10-01035	TH-232	TRG	TTLF-TREE-4-L	pCi/g	0.01458	N	U	0.05844	0.02842	0.02842	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-11	10-01035	TH-228	TRG	TTLF-TREE-3-L	pCi/g	-0.01748	N	U	0.123	0.03409	0.03409	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-11	10-01035	TH-230	TRG	TTLF-TREE-3-L	pCi/g	0.04057	N	U	0.08936	0.05319	0.05319	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-11	10-01035	TH-232	TRG	TTLF-TREE-3-L	pCi/g	0.0063	N	U	0.07677	0.02684	0.02684	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-12	10-01035	TH-228	TRG	TTLF-TREE-2-S	pCi/g	0.6246	Y		0.1282	0.2452	0.245204	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-12	10-01035	TH-230	TRG	TTLF-TREE-2-S	pCi/g	0.9773	Y		0.1122	0.3132	0.313209	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-12	10-01035	TH-232	TRG	TTLF-TREE-2-S	pCi/g	0.7925	Y		0.112	0.272	0.272006	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-13	10-01035	TH-228	TRG	TTLF-TREE-1-S	pCi/g	0.687	Y		0.182	0.3032	0.303204	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-13	10-01035	TH-230	TRG	TTLF-TREE-1-S	pCi/g	1.09	Y		0.1884	0.3915	0.391509	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-13	10-01035	TH-232	TRG	TTLF-TREE-1-S	pCi/g	0.7026	Y		0.1119	0.2891	0.289105	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-14	10-01035	TH-228	TRG	TTLF-1-R	pCi/g	0.03182	N	U	0.1418	0.07098	0.07098	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-14	10-01035	TH-230	TRG	TTLF-1-R	pCi/g	0.03094	N	U	0.1172	0.05606	0.05606	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-14	10-01035	TH-232	TRG	TTLF-1-R	pCi/g	-0.004567	N	U	0.072	0.006522	0.006522	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-15	10-01035	TH-228	TRG	TTLF-TREE-1-T	pCi/g	-0.009109	N	U	0.1287	0.03864	0.03864	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-15	10-01035	TH-230	TRG	TTLF-TREE-1-T	pCi/g	0.03557	N	U	0.09941	0.05462	0.05462	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-15	10-01035	TH-232	TRG	TTLF-TREE-1-T	pCi/g	-0.002601	N	U	0.06989	0.005231	0.005231	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-16	10-01035	TH-228	TRG	TTLF-2-T	pCi/g	0.006375	N	U	0.1151	0.04212	0.04212	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-16	10-01035	TH-230	TRG	TTLF-2-T	pCi/g	0.059	N	U	0.1153	0.07325	0.07325	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-16	10-01035	TH-232	TRG	TTLF-2-T	pCi/g	-0.003016	N	U	0.08103	0.006069	0.006069	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-17	10-01035	TH-228	TRG	TTLF-2-R	pCi/g	0.01247	N	U	0.1402	0.05831	0.05831	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-17	10-01035	TH-230	TRG	TTLF-2-R	pCi/g	0.04554	N	U	0.1709	0.08139	0.08139	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-17	10-01035	TH-232	TRG	TTLF-2-R	pCi/g	0.09529	N	U	0.1037	0.08782	0.08782	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-18	10-01035	TH-228	TRG	TTLF-TREE-2-L	pCi/g	-0.0026	N	U	0.09399	0.02997	0.02997	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-18	10-01035	TH-230	TRG	TTLF-TREE-2-L	pCi/g	0.08322	Y		0.05565	0.06691	0.06691	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-18	10-01035	TH-232	TRG	TTLF-TREE-2-L	pCi/g	0.008026	N	U	0.06521	0.02508	0.02508	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-19	10-01035	TH-228	TRG	TTLF-TREE-1-L	pCi/g	0.05427	N	U	0.06429	0.05552	0.05552	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-19	10-01035	TH-230	TRG	TTLF-TREE-1-L	pCi/g	0.03051	N	U	0.04924	0.03798	0.03798	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	
10-01035-19	10-01035	TH-232	TRG	TTLF-TREE-1-L	pCi/g	0	N	U	0.02852	0.002755113	0.002755	0.00237					OK		10/15/2009		EML Th-01 Modified									TRG	

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Appendix B
Groundwater Sampling Procedures

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Appendix B

Groundwater Sampling Procedures

For purging and sampling of monitoring wells was accomplished using a peristaltic pump with dedicated Teflon tubing (i.e., down-hole Teflon line, flexible pump roller tube, and Teflon outflow tube). Water quality parameters were measure using a flow-through cell designed specifically for micro-purge sampling. Groundwater parameter data was entered onto the groundwater sampling logs which are presented in Appendix _____.

During purging the following steps were completed:

1. Recorded all data on Groundwater Sampling Logs.
2. Unlocked the well cover and measured depth to groundwater using an electronic water level indicator from the top of the inner well casing.
3. Measured and slowly lowered Teflon lined tubing down the well until the end of the tubing was set at the midpoint of the screened interval.
4. Connected Teflon lined tubing to silicon tubing for Geotech 12 VDC variable speed peristaltic head. Effluent end of the silicon tubing connected to Teflon lined tubing, which was connected to a Groundwater Monitoring Multiprobe System flow-through Cell. Purge water was collected in 5-gallon buckets for later storage and disposal.
5. Groundwater was pumped at a rate that minimized drawdown. Flow rate was recorded on the Groundwater Sampling logs.
6. Monitored and recorded field parameters every five minutes. Continued purging the well until stabilization criteria were met.
7. Disconnect tubing from flow through cell.
8. Remove water level probe from well.

A groundwater sample was collected when stabilization was achieved. During groundwater sampling the following steps were completed.

1. Collected groundwater sample immediately after the well was purged.
2. Collected groundwater samples directly from the discharge end of the tubing. Samples were collected in bottles supplied by the contracted lab.
3. Caps were placed on the sample containers and the containers were placed in appropriately labeled and prepared coolers.
4. Removed the tubing from the peristaltic pump head and placed tubing back into well.
5. Replaced well cap and locked protective casing or j-plug. Cleaned up area.
6. Completed COC information, sample preparation and handing and shipped the samples to the offsite laboratory for analytical testing.

A field-filtered and unfiltered sample was collected at each sample location. The field-filtered sample was passed through a dedicated, 0.45 micron, disposable, in-line pore filter attached to the sample collection tubing prior to discharge in the sample containers.

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Appendix C
Photographs from 2009 Vegetation and Root Zone Sampling

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Photograph 01: Willow tree in Landfill Operable Unit

Photograph 02: Soil sample collection and separation

Photograph 03: Collection of soil and groundwater samples

Photograph 04: Willow tree in Landfill Operable Unit

Photograph 05: Groundwater collected at Location 1

Photograph 06: Bark samples collected from Location 2

Photograph 07: Bark samples collected from Location 2

Photograph 08: Soil sample collected at Location 2

Photograph 09: Willow tree located near monitoring well BM4

Photograph 10: Bark sample collected from Location 3

Photograph 11: Soil sample collected at Location 3

Photograph 12: Willow tree that has sustained damage

Photograph 13: Bark sample collected from Location 4

Photograph 14: Sampling setup at Location 4

Photograph 15: Soil sample collected at Location 4

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Appendix D
Photographs of Off-site Ditch and Two Mile Creek from May 2011 and September 2011 Site Visits

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Photograph 01: Flow in off-site drainage ditch near sampling location SW-15 (Sep 2011)

Photograph 02: Flow in off-site drainage ditch near sampling location SW-16 (Sep 2011)

Photograph 03: Flow in off-site drainage ditch near sampling location SW-16 (Sep 2011)

Photograph 04: Flow in off-site drainage ditch leading to Two Mile Creek (May 2011)

Photograph 05: Off-site drainage ditch discharging into Two Mile Creek (May 2011)

Photograph 06: Two Mile Creek immediately downstream of off-site ditch discharge (May 2011)

Photograph 07: Animal tracks along bank of Two Mile Creek (May 2011)

Photograph 08: Evidence of debris in Two Mile Creek (May 2011)

Photograph 09: Evidence of clearing activities along Two Mile Creek (May 2011)

Photograph 10: Two Mile Creek near Taylor Drive, Tonawanda (May 2011)

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Appendix E
Full On-Site Data Summary

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Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - Surface Soils (0-6") - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	18	18	-	-	-	-	3.62E-02-2.06E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	26	1	6.70E-01-7.01E+00	IA2-DOE-B3	0-0.5	2.27E+00	1.40E-01-2.52E+00	1.40E+00	2.69E+00	95% KM (BCA) UCL
RA-228	pCi/g	26	0	5.64E-01-1.82E+00	SW/SD-08	0-0	1.02E+00	8.29E-02-1.57E+00	1.53E+00	1.12E+00	Use 95% Student's-t UCL
TH-228	pCi/g	25	0	4.39E-01-1.47E+00	IA3-18	0-0.5	8.76E-01	5.42E-03-1.80E-01	1.06E+00	9.54E-01	Use 95% Student's-t UCL
TH-230	pCi/g	26	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.11E+00	1.80E-02-1.60E-01	1.12E+00	1.24E+00	Use 95% Student's-t UCL
TH-232	pCi/g	26	0	4.67E-01-1.84E+00	IA3-18	0-0.5	8.34E-01	1.27E-02-1.24E-01	1.02E+00	9.34E-01	Use 95% Approximate Gamma UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	26	3	5.50E-01-1.53E+01	SW/SD-05	0-0	2.84E+00	6.56E-02-2.20E+00	1.33E+00	5.56E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	26	18	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-6.44E-01	1.89E-01	3.67E-01	95% KM (t) UCL
U-238	pCi/g	26	5	5.50E-01-1.41E+01	SW/SD-05	0-0	3.01E+00	3.27E-02-2.20E+00	1.50E+00	5.52E+00	95% KM (Chebyshev) UCL
EU1 - Surface Soils (0-6") - Original Depths -Soils Only											
AM-241	pCi/g	18	18	-	-	-	-	3.62E-02-2.06E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	18	1	1.10E+00-7.01E+00	IA2-DOE-B3	0-0.5	2.76E+00	4.86E-01-2.52E+00	1.40E+00	3.30E+00	95% KM (BCA) UCL
RA-228	pCi/g	18	0	5.64E-01-1.43E+00	IA2-18	0-0.5	9.20E-01	8.29E-02-3.82E-01	1.53E+00	1.01E+00	Use 95% Student's-t UCL
TH-228	pCi/g	17	0	4.39E-01-1.47E+00	IA3-18	0-0.5	9.07E-01	5.42E-03-9.49E-02	1.06E+00	1.01E+00	Use 95% Student's-t UCL
TH-230	pCi/g	18	0	7.60E-01-1.59E+00	IA2-19	0-0.5	1.15E+00	1.80E-02-5.92E-02	1.12E+00	1.29E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	18	0	4.67E-01-1.84E+00	IA3-18	0-0.5	8.91E-01	1.27E-02-4.72E-02	1.02E+00	1.02E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	18	3	5.50E-01-3.03E+00	IA2-18	0-0.5	1.48E+00	3.48E-01-2.20E+00	1.33E+00	1.70E+00	95% KM (t) UCL
U-235	pCi/g	18	18	-	-	-	-	1.25E-01-6.44E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	18	5	5.50E-01-3.03E+00	IA2-18	0-0.5	1.55E+00	3.48E-01-2.20E+00	1.50E+00	1.72E+00	95% KM (t) UCL
EU1 - Surface Soils (0-6") - Original Depths -Sediment Only											
RA-226	pCi/g	8	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.22E+00	1.40E-01-7.87E-01	1.40E+00	1.41E+00	Use 95% Student's-t UCL
RA-228	pCi/g	8	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.24E+00	2.79E-01-1.57E+00	1.53E+00	1.47E+00	Use 95% Student's-t UCL
TH-228	pCi/g	8	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.12E-01	8.25E-02-1.80E-01	1.06E+00	9.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	8	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.02E+00	5.97E-02-1.60E-01	1.12E+00	1.39E+00	Use 95% Student's-t UCL
TH-232	pCi/g	8	0	4.75E-01-1.02E+00	SW/SD-01	0-0	7.06E-01	6.90E-02-1.24E-01	1.02E+00	8.42E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	8	0	5.74E-01-1.53E+01	SW/SD-05	0-0	5.38E+00	6.56E-02-1.57E-01	1.33E+00	8.92E+00	Use 95% Student's-t UCL
U-235	pCi/g	8	0	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.14E-01	1.89E-01	8.39E-01	Use 95% Student's-t UCL
U-238	pCi/g	8	0	6.31E-01-1.41E+01	SW/SD-05	0-0	5.40E+00	3.27E-02-1.40E-01	1.50E+00	8.84E+00	Use 95% Student's-t UCL
EU1 - Surface Soils (0-6") - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	98	97	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	106	12	6.70E-01-4.33E+01	IA1-3	0-0.5	3.22E+00	1.40E-01-2.89E+00	1.40E+00	3.87E+00	95% KM (BCA) UCL
RA-228	pCi/g	106	2	4.01E-01-3.29E+00	IA5-15	0-0.5	9.62E-01	6.75E-02-1.57E+00	1.53E+00	1.02E+00	95% KM (BCA) UCL
TH-228	pCi/g	104	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.52E-01	5.42E-03-1.80E-01	1.06E+00	9.05E-01	Use 95% Student's-t UCL
TH-230	pCi/g	106	0	4.85E-01-4.14E+00	IA1-20	0-0.5	1.22E+00	5.53E-03-1.60E-01	1.12E+00	1.31E+00	Use 95% Student's-t UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - Surface Soils (0-6") - Top Void Removed - Combined Soil and Sediment											
TH-232	pCi/g	106	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.20E-01	9.25E-03-1.24E-01	1.02E+00	8.82E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	106	18	5.71E-02-3.65E+01	IA1-3	0-0.5	2.76E+00	1.84E-02-2.63E+00	1.33E+00	3.15E+00	95% KM (BCA) UCL
U-235	pCi/g	106	96	7.41E-02-2.92E+00	IA1-3	0-0.5	7.93E-01	4.05E-02-8.59E-01	1.89E-01	2.43E-01	95% KM (t) UCL
U-238	pCi/g	106	23	5.50E-01-3.65E+01	IA1-3	0-0.5	2.90E+00	3.27E-02-2.63E+00	1.50E+00	3.22E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-6") - Top Void Removed-Soils Only											
AM-241	pCi/g	98	97	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	98	12	9.50E-01-4.33E+01	IA1-3	0-0.5	3.40E+00	4.27E-01-2.89E+00	1.40E+00	4.07E+00	95% KM (BCA) UCL
RA-228	pCi/g	98	2	4.01E-01-3.29E+00	IA5-15	0-0.5	9.39E-01	6.75E-02-5.73E-01	1.53E+00	1.00E+00	95% KM (BCA) UCL
TH-228	pCi/g	96	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.56E-01	5.42E-03-1.68E-01	1.06E+00	9.13E-01	Use 95% Student's-t UCL
TH-230	pCi/g	98	0	5.25E-01-4.14E+00	IA1-20	0-0.5	1.23E+00	5.53E-03-9.67E-02	1.12E+00	1.33E+00	Use 95% Student's-t UCL
TH-232	pCi/g	98	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.29E-01	9.25E-03-8.23E-02	1.02E+00	8.96E-01	Use 95% Student's-t UCL
U-234	pCi/g	98	18	5.71E-02-3.65E+01	IA1-3	0-0.5	2.50E+00	1.84E-02-2.63E+00	1.33E+00	2.92E+00	95% KM (BCA) UCL
U-235	pCi/g	98	96	9.26E-01-2.92E+00	IA1-3	0-0.5	1.93E+00	1.25E-01-8.59E-01	1.89E-01	9.94E-01	95% KM (t) UCL
U-238	pCi/g	98	23	5.50E-01-3.65E+01	IA1-3	0-0.5	2.63E+00	3.48E-01-2.63E+00	1.50E+00	3.07E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-6") - Top Void Removed-Sediment Only											
RA-226	pCi/g	8	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.22E+00	1.40E-01-7.87E-01	1.40E+00	1.41E+00	Use 95% Student's-t UCL
RA-228	pCi/g	8	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.24E+00	2.79E-01-1.57E+00	1.53E+00	1.47E+00	Use 95% Student's-t UCL
TH-228	pCi/g	8	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.12E-01	8.25E-02-1.80E-01	1.06E+00	9.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	8	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.02E+00	5.97E-02-1.60E-01	1.12E+00	1.39E+00	Use 95% Student's-t UCL
TH-232	pCi/g	8	0	4.75E-01-1.02E+00	SW/SD-01	0-0	7.06E-01	6.90E-02-1.24E-01	1.02E+00	8.42E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	8	0	5.74E-01-1.53E+01	SW/SD-05	0-0	5.38E+00	6.56E-02-1.57E-01	1.33E+00	8.92E+00	Use 95% Student's-t UCL
U-235	pCi/g	8	0	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.14E-01	1.89E-01	8.39E-01	Use 95% Student's-t UCL
U-238	pCi/g	8	0	6.31E-01-1.41E+01	SW/SD-05	0-0	5.40E+00	3.27E-02-1.40E-01	1.50E+00	8.84E+00	Use 95% Student's-t UCL
EU1 - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	98	97	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	106	12	6.70E-01-4.33E+01	IA1-3	0-0.5	3.22E+00	1.40E-01-2.89E+00	1.40E+00	3.85E+00	95% KM (BCA) UCL
RA-228	pCi/g	106	2	4.01E-01-3.29E+00	IA5-15	0-0.5	9.62E-01	6.75E-02-1.57E+00	1.53E+00	1.02E+00	95% KM (BCA) UCL
TH-228	pCi/g	104	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.52E-01	5.42E-03-1.80E-01	1.06E+00	9.05E-01	Use 95% Student's-t UCL
TH-230	pCi/g	106	0	4.85E-01-4.14E+00	IA1-20	0-0.5	1.22E+00	5.53E-03-1.60E-01	1.12E+00	1.31E+00	Use 95% Student's-t UCL
TH-232	pCi/g	106	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.20E-01	9.25E-03-1.24E-01	1.02E+00	8.82E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	106	18	5.71E-02-3.65E+01	IA1-3	0-0.5	2.76E+00	1.84E-02-2.63E+00	1.33E+00	3.24E+00	95% KM (BCA) UCL
U-235	pCi/g	106	96	7.41E-02-2.92E+00	IA1-3	0-0.5	7.93E-01	4.05E-02-8.59E-01	1.89E-01	2.43E-01	95% KM (t) UCL
U-238	pCi/g	106	23	5.50E-01-3.65E+01	IA1-3	0-0.5	2.90E+00	3.27E-02-2.63E+00	1.50E+00	3.30E+00	95% KM (BCA) UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - Surface Soils (0-6") - All Voids Removed-Soils Only											
AM-241	pCi/g	98	97	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	98	12	9.50E-01-4.33E+01	IA1-3	0-0.5	3.40E+00	4.27E-01-2.89E+00	1.40E+00	4.13E+00	95% KM (BCA) UCL
RA-228	pCi/g	98	2	4.01E-01-3.29E+00	IA5-15	0-0.5	9.39E-01	6.75E-02-5.73E-01	1.53E+00	9.95E-01	95% KM (BCA) UCL
TH-228	pCi/g	96	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.56E-01	5.42E-03-1.68E-01	1.06E+00	9.13E-01	Use 95% Student's-t UCL
TH-230	pCi/g	98	0	5.25E-01-4.14E+00	IA1-20	0-0.5	1.23E+00	5.53E-03-9.67E-02	1.12E+00	1.33E+00	Use 95% Student's-t UCL
TH-232	pCi/g	98	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.29E-01	9.25E-03-8.23E-02	1.02E+00	8.96E-01	Use 95% Student's-t UCL
U-234	pCi/g	98	18	5.71E-02-3.65E+01	IA1-3	0-0.5	2.50E+00	1.84E-02-2.63E+00	1.33E+00	2.90E+00	95% KM (BCA) UCL
U-235	pCi/g	98	96	9.26E-01-2.92E+00	IA1-3	0-0.5	1.93E+00	1.25E-01-8.59E-01	1.89E-01	9.94E-01	95% KM (t) UCL
U-238	pCi/g	98	23	5.50E-01-3.65E+01	IA1-3	0-0.5	2.63E+00	3.48E-01-2.63E+00	1.50E+00	3.04E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-6") - All Voids Removed-Sediment Only											
RA-226	pCi/g	8	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.22E+00	1.40E-01-7.87E-01	1.40E+00	1.41E+00	Use 95% Student's-t UCL
RA-228	pCi/g	8	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.24E+00	2.79E-01-1.57E+00	1.53E+00	1.47E+00	Use 95% Student's-t UCL
TH-228	pCi/g	8	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.12E-01	8.25E-02-1.80E-01	1.06E+00	9.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	8	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.02E+00	5.97E-02-1.60E-01	1.12E+00	1.39E+00	Use 95% Student's-t UCL
TH-232	pCi/g	8	0	4.75E-01-1.02E+00	SW/SD-01	0-0	7.06E-01	6.90E-02-1.24E-01	1.02E+00	8.42E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	8	0	5.74E-01-1.53E+01	SW/SD-05	0-0	5.38E+00	6.56E-02-1.57E-01	1.33E+00	8.92E+00	Use 95% Student's-t UCL
U-235	pCi/g	8	0	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.14E-01	1.89E-01	8.39E-01	Use 95% Student's-t UCL
U-238	pCi/g	8	0	6.31E-01-1.41E+01	SW/SD-05	0-0	5.40E+00	3.27E-02-1.40E-01	1.50E+00	8.84E+00	Use 95% Student's-t UCL
EU1 - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	109	108	7.11E-02-7.11E-02	IA6-20	1.5-2	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	121	17	3.58E-01-4.33E+01	IA1-3	1.2-1.7	3.07E+00	1.40E-01-2.89E+00	1.40E+00	3.58E+00	95% KM (BCA) UCL
RA-228	pCi/g	121	4	4.01E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.02E+00	6.75E-02-1.57E+00	1.53E+00	1.10E+00	95% KM (BCA) UCL
TH-228	pCi/g	118	0	3.25E-01-2.99E+00	IA5-15	0.5-1	8.40E-01	5.42E-03-1.82E-01	1.06E+00	8.88E-01	Use 95% Student's-t UCL
TH-230	pCi/g	120	0	4.34E-01-4.14E+00	IA1-20	1.1-1.6	1.21E+00	5.53E-03-1.88E-01	1.12E+00	1.29E+00	Use 95% Student's-t UCL
TH-232	pCi/g	121	0	3.04E-01-3.42E+00	IA5-15	0.5-1	8.11E-01	9.25E-03-1.24E-01	1.02E+00	8.66E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	121	20	5.71E-02-3.65E+01	IA1-3	1.2-1.7	2.78E+00	1.84E-02-2.63E+00	1.33E+00	3.08E+00	95% KM (BCA) UCL
U-235	pCi/g	121	108	7.41E-02-2.92E+00	IA1-3	1.2-1.7	7.22E-01	4.05E-02-8.59E-01	1.89E-01	2.44E-01	95% KM (t) UCL
U-238	pCi/g	121	26	5.38E-01-3.65E+01	IA1-3	1.2-1.7	2.90E+00	3.27E-02-2.63E+00	1.50E+00	3.19E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-2') - Original Depths-Soils Only											
AM-241	pCi/g	109	108	7.11E-02-7.11E-02	IA6-20	1.5-2	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	113	17	3.58E-01-4.33E+01	IA1-3	1.2-1.7	3.23E+00	2.16E-01-2.89E+00	1.40E+00	3.70E+00	95% KM (BCA) UCL
RA-228	pCi/g	113	4	4.01E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.01E+00	6.75E-02-1.44E+00	1.53E+00	1.09E+00	95% KM (BCA) UCL
TH-228	pCi/g	110	0	3.25E-01-2.99E+00	IA5-15	0.5-1	8.42E-01	5.42E-03-1.82E-01	1.06E+00	8.93E-01	Use 95% Student's-t UCL
TH-230	pCi/g	112	0	4.34E-01-4.14E+00	IA1-20	1.1-1.6	1.22E+00	5.53E-03-1.88E-01	1.12E+00	1.31E+00	Use 95% Student's-t UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - Surface Soils (0-2') - Original Depths-Soils Only											
TH-232	pCi/g	113	0	3.04E-01-3.42E+00	IA5-15	0.5-1	8.18E-01	9.25E-03-1.12E-01	1.02E+00	8.76E-01	Use 95% Student's-t UCL
U-234	pCi/g	113	20	5.71E-02-3.65E+01	IA1-3	1.2-1.7	2.55E+00	1.84E-02-2.63E+00	1.33E+00	3.01E+00	95% KM (BCA) UCL
U-235	pCi/g	113	108	1.32E-01-2.92E+00	IA1-3	1.2-1.7	1.06E+00	5.81E-02-8.59E-01	1.89E-01	2.28E-01	95% KM (t) UCL
U-238	pCi/g	113	26	5.38E-01-3.65E+01	IA1-3	1.2-1.7	2.67E+00	4.69E-02-2.63E+00	1.50E+00	3.02E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-2') - Original Depths-Sediment Only											
RA-226	pCi/g	8	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.22E+00	1.40E-01-7.87E-01	1.40E+00	1.41E+00	Use 95% Student's-t UCL
RA-228	pCi/g	8	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.24E+00	2.79E-01-1.57E+00	1.53E+00	1.47E+00	Use 95% Student's-t UCL
TH-228	pCi/g	8	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.12E-01	8.25E-02-1.80E-01	1.06E+00	9.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	8	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.02E+00	5.97E-02-1.60E-01	1.12E+00	1.39E+00	Use 95% Student's-t UCL
TH-232	pCi/g	8	0	4.75E-01-1.02E+00	SW/SD-01	0-0	7.06E-01	6.90E-02-1.24E-01	1.02E+00	8.42E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	8	0	5.74E-01-1.53E+01	SW/SD-05	0-0	5.38E+00	6.56E-02-1.57E-01	1.33E+00	8.92E+00	Use 95% Student's-t UCL
U-235	pCi/g	8	0	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.14E-01	1.89E-01	8.39E-01	Use 95% Student's-t UCL
U-238	pCi/g	8	0	6.31E-01-1.41E+01	SW/SD-05	0-0	5.40E+00	3.27E-02-1.40E-01	1.50E+00	8.84E+00	Use 95% Student's-t UCL
EU1 - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	143	142	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	155	19	3.58E-01-4.33E+01	IA1-3	0-0.5	3.18E+00	1.40E-01-2.89E+00	1.40E+00	3.54E+00	95% KM (BCA) UCL
RA-228	pCi/g	155	4	4.01E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.02E+00	6.75E-02-1.57E+00	1.53E+00	1.08E+00	95% KM (BCA) UCL
TH-228	pCi/g	152	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.54E-01	5.42E-03-1.82E-01	1.06E+00	8.99E-01	Use 95% Student's-t UCL
TH-230	pCi/g	154	0	4.34E-01-4.14E+00	IA1-20	0-0.5	1.22E+00	5.53E-03-1.88E-01	1.12E+00	1.30E+00	Use 95% Student's-t UCL
TH-232	pCi/g	155	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.24E-01	9.25E-03-1.24E-01	1.02E+00	8.74E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	155	26	5.71E-02-3.65E+01	IA1-3	0-0.5	2.73E+00	1.84E-02-2.63E+00	1.33E+00	2.96E+00	95% KM (BCA) UCL
U-235	pCi/g	155	141	7.41E-02-2.92E+00	IA1-3	0-0.5	7.22E-01	4.05E-02-8.59E-01	1.89E-01	2.20E-01	95% KM (t) UCL
U-238	pCi/g	155	33	5.38E-01-3.65E+01	IA1-3	0-0.5	2.84E+00	3.27E-02-2.63E+00	1.50E+00	2.99E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-2') - Top Void Removed-Soils Only											
AM-241	pCi/g	143	142	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	147	19	3.58E-01-4.33E+01	IA1-3	0-0.5	3.30E+00	2.16E-01-2.89E+00	1.40E+00	3.68E+00	95% KM (BCA) UCL
RA-228	pCi/g	147	4	4.01E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.00E+00	6.75E-02-1.44E+00	1.53E+00	1.08E+00	95% KM (BCA) UCL
TH-228	pCi/g	144	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.56E-01	5.42E-03-1.82E-01	1.06E+00	9.03E-01	Use 95% Student's-t UCL
TH-230	pCi/g	146	0	4.34E-01-4.14E+00	IA1-20	0-0.5	1.23E+00	5.53E-03-1.88E-01	1.12E+00	1.31E+00	Use 95% Student's-t UCL
TH-232	pCi/g	147	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.30E-01	9.25E-03-1.12E-01	1.02E+00	8.83E-01	Use 95% Student's-t UCL
U-234	pCi/g	147	26	5.71E-02-3.65E+01	IA1-3	0-0.5	2.55E+00	1.84E-02-2.63E+00	1.33E+00	2.80E+00	95% KM (BCA) UCL
U-235	pCi/g	147	141	1.32E-01-2.92E+00	IA1-3	0-0.5	1.01E+00	5.81E-02-8.59E-01	1.89E-01	2.09E-01	95% KM (t) UCL
U-238	pCi/g	147	33	5.38E-01-3.65E+01	IA1-3	0-0.5	2.66E+00	4.69E-02-2.63E+00	1.50E+00	2.89E+00	95% KM (BCA) UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - Surface Soils (0-2') - Top Void Removed-Sediment Only											
RA-226	pCi/g	8	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.22E+00	1.40E-01-7.87E-01	1.40E+00	1.41E+00	Use 95% Student's-t UCL
RA-228	pCi/g	8	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.24E+00	2.79E-01-1.57E+00	1.53E+00	1.47E+00	Use 95% Student's-t UCL
TH-228	pCi/g	8	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.12E-01	8.25E-02-1.80E-01	1.06E+00	9.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	8	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.02E+00	5.97E-02-1.60E-01	1.12E+00	1.39E+00	Use 95% Student's-t UCL
TH-232	pCi/g	8	0	4.75E-01-1.02E+00	SW/SD-01	0-0	7.06E-01	6.90E-02-1.24E-01	1.02E+00	8.42E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	8	0	5.74E-01-1.53E+01	SW/SD-05	0-0	5.38E+00	6.56E-02-1.57E-01	1.33E+00	8.92E+00	Use 95% Student's-t UCL
U-235	pCi/g	8	0	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.14E-01	1.89E-01	8.39E-01	Use 95% Student's-t UCL
U-238	pCi/g	8	0	6.31E-01-1.41E+01	SW/SD-05	0-0	5.40E+00	3.27E-02-1.40E-01	1.50E+00	8.84E+00	Use 95% Student's-t UCL
EU1 - Surface Soils (0-2') - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	150	149	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	162	20	3.58E-01-4.33E+01	IA1-3	0-0.5	3.18E+00	1.40E-01-2.89E+00	1.40E+00	3.43E+00	95% KM (BCA) UCL
RA-228	pCi/g	162	4	4.01E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.02E+00	6.75E-02-1.57E+00	1.53E+00	1.08E+00	95% KM (BCA) UCL
TH-228	pCi/g	159	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.59E-01	5.42E-03-1.82E-01	1.06E+00	9.03E-01	Use 95% Student's-t UCL
TH-230	pCi/g	161	0	4.34E-01-4.14E+00	IA1-20	0-0.5	1.22E+00	5.53E-03-1.88E-01	1.12E+00	1.29E+00	Use 95% Student's-t UCL
TH-232	pCi/g	162	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.26E-01	9.25E-03-1.24E-01	1.02E+00	8.74E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	162	26	5.71E-02-3.65E+01	IA1-3	0-0.5	2.70E+00	1.84E-02-2.63E+00	1.33E+00	2.94E+00	95% KM (BCA) UCL
U-235	pCi/g	162	148	7.41E-02-2.92E+00	IA1-3	0-0.5	7.22E-01	4.05E-02-8.59E-01	1.89E-01	2.16E-01	95% KM (t) UCL
U-238	pCi/g	162	33	5.38E-01-3.65E+01	IA1-3	0-0.5	2.80E+00	3.27E-02-2.63E+00	1.50E+00	2.94E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-2') - All Voids Removed-Soils Only											
AM-241	pCi/g	150	149	7.11E-02-7.11E-02	IA6-20	0-0.5	7.11E-02	3.55E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	154	20	3.58E-01-4.33E+01	IA1-3	0-0.5	3.29E+00	2.16E-01-2.89E+00	1.40E+00	3.62E+00	95% KM (BCA) UCL
RA-228	pCi/g	154	4	4.01E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.01E+00	6.75E-02-1.44E+00	1.53E+00	1.08E+00	95% KM (BCA) UCL
TH-228	pCi/g	151	0	3.25E-01-2.99E+00	IA5-15	0-0.5	8.62E-01	5.42E-03-1.82E-01	1.06E+00	9.08E-01	Use 95% Student's-t UCL
TH-230	pCi/g	153	0	4.34E-01-4.14E+00	IA1-20	0-0.5	1.23E+00	5.53E-03-1.88E-01	1.12E+00	1.31E+00	Use 95% Student's-t UCL
TH-232	pCi/g	154	0	3.04E-01-3.42E+00	IA5-15	0-0.5	8.32E-01	9.25E-03-1.12E-01	1.02E+00	8.83E-01	Use 95% Student's-t UCL
U-234	pCi/g	154	26	5.71E-02-3.65E+01	IA1-3	0-0.5	2.53E+00	1.84E-02-2.63E+00	1.33E+00	2.75E+00	95% KM (BCA) UCL
U-235	pCi/g	154	148	1.32E-01-2.92E+00	IA1-3	0-0.5	1.01E+00	5.81E-02-8.59E-01	1.89E-01	2.05E-01	95% KM (t) UCL
U-238	pCi/g	154	33	5.38E-01-3.65E+01	IA1-3	0-0.5	2.63E+00	4.69E-02-2.63E+00	1.50E+00	2.82E+00	95% KM (BCA) UCL
EU1 - Surface Soils (0-2') - All Voids Removed-Sediment Only											
RA-226	pCi/g	8	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.22E+00	1.40E-01-7.87E-01	1.40E+00	1.41E+00	Use 95% Student's-t UCL
RA-228	pCi/g	8	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.24E+00	2.79E-01-1.57E+00	1.53E+00	1.47E+00	Use 95% Student's-t UCL
TH-228	pCi/g	8	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.12E-01	8.25E-02-1.80E-01	1.06E+00	9.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	8	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.02E+00	5.97E-02-1.60E-01	1.12E+00	1.39E+00	Use 95% Student's-t UCL
TH-232	pCi/g	8	0	4.75E-01-1.02E+00	SW/SD-01	0-0	7.06E-01	6.90E-02-1.24E-01	1.02E+00	8.42E-01	Use 95% Student's-t UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - Surface Soils (0-2') - All Voids Removed-Sediment Only											
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	8	0	5.74E-01-1.53E+01	SW/SD-05	0-0	5.38E+00	6.56E-02-1.57E-01	1.33E+00	8.92E+00	Use 95% Student's-t UCL
U-235	pCi/g	8	0	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.14E-01	1.89E-01	8.39E-01	Use 95% Student's-t UCL
U-238	pCi/g	8	0	6.31E-01-1.41E+01	SW/SD-05	0-0	5.40E+00	3.27E-02-1.40E-01	1.50E+00	8.84E+00	Use 95% Student's-t UCL
EU1 - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	525	522	5.30E-02-7.11E-02	IA6-20	1.5-2	5.98E-02	2.82E-02-2.12E+00	8.12E-02	5.37E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	6.34E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	9-10	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	537	37	3.58E-01-3.49E+03	IA1-5	3-4	2.18E+01	1.40E-01-1.68E+01	1.66E+00	5.12E+01	95% KM (Chebyshev) UCL
RA-228	pCi/g	537	8	3.13E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.20E+00	4.96E-02-2.27E+00	1.32E+00	1.25E+00	95% KM (BCA) UCL
TH-228	pCi/g	532	0	2.87E-01-3.96E+00	IA1-B12	19-20	1.04E+00	5.42E-03-1.51E+00	1.14E+00	1.09E+00	Use 95% Student's-t UCL
TH-230	pCi/g	528	0	3.48E-01-1.64E+03	IA1-5	3-4	8.35E+00	5.53E-03-1.01E+00	1.26E+00	2.36E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	537	0	2.79E-01-7.08E+00	IA1-B6	15-16	1.02E+00	6.17E-03-6.73E-01	1.02E+00	1.16E+00	Use 95% Chebyshev (Mean, Sd) UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	537	82	5.31E-02-2.05E+03	IA1-5	3-4	1.77E+01	1.84E-02-1.96E+01	1.50E+00	3.45E+01	95% KM (Chebyshev) UCL
U-235	pCi/g	537	473	7.41E-02-1.59E+02	IA1-5	3-4	8.86E+00	4.05E-02-5.11E+00	1.69E-01	2.66E+00	95% KM (Chebyshev) UCL
U-238	pCi/g	537	106	5.22E-01-2.05E+03	IA1-5	3-4	1.86E+01	3.27E-02-1.96E+01	1.62E+00	3.45E+01	95% KM (Chebyshev) UCL
EU1 - All Depths-Soils Only											
AM-241	pCi/g	525	522	5.30E-02-7.11E-02	IA6-20	1.5-2	5.98E-02	2.82E-02-2.12E+00	8.12E-02	5.37E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	6.34E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	9-10	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	529	37	3.58E-01-3.49E+03	IA1-5	3-4	2.22E+01	2.16E-01-1.68E+01	1.66E+00	5.20E+01	95% KM (Chebyshev) UCL
RA-228	pCi/g	529	8	3.13E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.20E+00	4.96E-02-2.27E+00	1.32E+00	1.24E+00	95% KM (BCA) UCL
TH-228	pCi/g	524	0	2.87E-01-3.96E+00	IA1-B12	19-20	1.04E+00	5.42E-03-1.51E+00	1.14E+00	1.09E+00	Use 95% Student's-t UCL
TH-230	pCi/g	520	0	3.48E-01-1.64E+03	IA1-5	3-4	8.46E+00	5.53E-03-1.01E+00	1.26E+00	2.39E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	529	0	2.79E-01-7.08E+00	IA1-B6	15-16	1.02E+00	6.17E-03-6.73E-01	1.02E+00	1.16E+00	Use 95% Chebyshev (Mean, Sd) UCL
U-234	pCi/g	529	82	5.31E-02-2.05E+03	IA1-5	3-4	1.79E+01	1.84E-02-1.96E+01	1.50E+00	3.49E+01	95% KM (Chebyshev) UCL
U-235	pCi/g	529	473	1.32E-01-1.59E+02	IA1-5	3-4	1.01E+01	5.81E-02-5.11E+00	1.69E-01	2.29E+00	95% KM (BCA) UCL
U-238	pCi/g	529	106	5.22E-01-2.05E+03	IA1-5	3-4	1.89E+01	4.69E-02-1.96E+01	1.62E+00	3.49E+01	95% KM (Chebyshev) UCL
EU1 - All Depths-Sediment Only											
RA-226	pCi/g	8	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.22E+00	1.40E-01-7.87E-01	1.66E+00	1.41E+00	Use 95% Student's-t UCL
RA-228	pCi/g	8	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.24E+00	2.79E-01-1.57E+00	1.32E+00	1.47E+00	Use 95% Student's-t UCL
TH-228	pCi/g	8	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.12E-01	8.25E-02-1.80E-01	1.14E+00	9.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	8	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.02E+00	5.97E-02-1.60E-01	1.26E+00	1.39E+00	Use 95% Student's-t UCL
TH-232	pCi/g	8	0	4.75E-01-1.02E+00	SW/SD-01	0-0	7.06E-01	6.90E-02-1.24E-01	1.02E+00	8.42E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	8	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.20E+01	4.81E-02-4.98E-02	-	2.68E+01	Use 95% Approximate Gamma UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU1 - All Depths-Sediment Only											
U-234	pCi/g	8	0	5.74E-01-1.53E+01	SW/SD-05	0-0	5.38E+00	6.56E-02-1.57E-01	1.50E+00	8.92E+00	Use 95% Student's-t UCL
U-235	pCi/g	8	0	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.14E-01	1.69E-01	8.39E-01	Use 95% Student's-t UCL
U-238	pCi/g	8	0	6.31E-01-1.41E+01	SW/SD-05	0-0	5.40E+00	3.27E-02-1.40E-01	1.62E+00	8.84E+00	Use 95% Student's-t UCL
EU2 - Surface Soils (0-6") - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	10	10	-	-	-	-	3.92E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	10	0	9.73E-01-6.96E+00	IA3-6	0-0.5	2.50E+00	4.03E-01-4.74E+00	1.40E+00	3.79E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	10	0	5.13E-01-1.85E+00	IA3-6	0-0.5	8.16E-01	8.19E-02-4.45E-01	1.53E+00	1.07E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	9	0	4.13E-01-8.22E-01	IA3-8	0-0.5	6.42E-01	5.33E-03-7.66E-02	1.06E+00	7.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	6.71E-01-2.08E+00	IA3-2	0-0.5	1.07E+00	1.24E-02-6.87E-02	1.12E+00	1.33E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	5.23E-01-7.89E-01	IA3-2	0-0.5	6.93E-01	1.24E-02-5.81E-02	1.02E+00	7.48E-01	Use 95% Student's-t UCL
U-234	pCi/g	10	0	5.27E-01-5.87E+00	IA3-6	0-0.5	1.69E+00	3.39E-01-4.18E+00	1.33E+00	2.75E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	10	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	10	0	5.27E-01-5.87E+00	IA3-6	0-0.5	1.69E+00	3.39E-01-4.18E+00	1.50E+00	2.75E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-6") - Original Depths-Soils Only											
AM-241	pCi/g	10	10	-	-	-	-	3.92E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	10	0	9.73E-01-6.96E+00	IA3-6	0-0.5	2.50E+00	4.03E-01-4.74E+00	1.40E+00	3.79E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	10	0	5.13E-01-1.85E+00	IA3-6	0-0.5	8.16E-01	8.19E-02-4.45E-01	1.53E+00	1.07E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	9	0	4.13E-01-8.22E-01	IA3-8	0-0.5	6.42E-01	5.33E-03-7.66E-02	1.06E+00	7.19E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	6.71E-01-2.08E+00	IA3-2	0-0.5	1.07E+00	1.24E-02-6.87E-02	1.12E+00	1.33E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	5.23E-01-7.89E-01	IA3-2	0-0.5	6.93E-01	1.24E-02-5.81E-02	1.02E+00	7.48E-01	Use 95% Student's-t UCL
U-234	pCi/g	10	0	5.27E-01-5.87E+00	IA3-6	0-0.5	1.69E+00	3.39E-01-4.18E+00	1.33E+00	2.75E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	10	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	10	0	5.27E-01-5.87E+00	IA3-6	0-0.5	1.69E+00	3.39E-01-4.18E+00	1.50E+00	2.75E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-6") - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	53	52	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	53	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	4.03E-01-4.74E+00	1.40E+00	2.39E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	53	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.45E-01	7.95E-02-4.45E-01	1.53E+00	9.20E-01	Use 95% Student's-t UCL
TH-228	pCi/g	52	0	3.14E-01-1.38E+00	IA5-B03	0-0.5	7.47E-01	5.33E-03-1.49E-01	1.06E+00	7.94E-01	Use 95% Student's-t UCL
TH-230	pCi/g	52	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.62E-01	1.24E-02-8.53E-02	1.12E+00	1.03E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	53	0	2.72E-01-2.20E+00	IA6-12	0-0.5	7.21E-01	8.93E-03-8.35E-02	1.02E+00	7.83E-01	Use 95% Student's-t UCL
U-234	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.33E+00	1.52E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	53	53	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.50E+00	1.52E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-6") - Top Void Removed-Soils Only											
AM-241	pCi/g	53	52	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	53	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	4.03E-01-4.74E+00	1.40E+00	2.39E+00	Use 95% Approximate Gamma UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU2 - Surface Soils (0-6") - Top Void Removed-Soils Only											
RA-228	pCi/g	53	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.45E-01	7.95E-02-4.45E-01	1.53E+00	9.20E-01	Use 95% Student's-t UCL
TH-228	pCi/g	52	0	3.14E-01-1.38E+00	IA5-B03	0-0.5	7.47E-01	5.33E-03-1.49E-01	1.06E+00	7.94E-01	Use 95% Student's-t UCL
TH-230	pCi/g	52	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.62E-01	1.24E-02-8.53E-02	1.12E+00	1.03E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	53	0	2.72E-01-2.20E+00	IA6-12	0-0.5	7.21E-01	8.93E-03-8.35E-02	1.02E+00	7.83E-01	Use 95% Student's-t UCL
U-234	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.33E+00	1.52E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	53	53	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.50E+00	1.52E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	53	52	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	53	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	4.03E-01-4.74E+00	1.40E+00	2.39E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	53	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.45E-01	7.95E-02-4.45E-01	1.53E+00	9.20E-01	Use 95% Student's-t UCL
TH-228	pCi/g	52	0	3.14E-01-1.38E+00	IA5-B03	0-0.5	7.47E-01	5.33E-03-1.49E-01	1.06E+00	7.94E-01	Use 95% Student's-t UCL
TH-230	pCi/g	52	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.62E-01	1.24E-02-8.53E-02	1.12E+00	1.03E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	53	0	2.72E-01-2.20E+00	IA6-12	0-0.5	7.21E-01	8.93E-03-8.35E-02	1.02E+00	7.83E-01	Use 95% Student's-t UCL
U-234	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.33E+00	1.52E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	53	53	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.50E+00	1.52E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-6") - All Voids Removed-Soils Only											
AM-241	pCi/g	53	52	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	53	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	4.03E-01-4.74E+00	1.40E+00	2.39E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	53	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.45E-01	7.95E-02-4.45E-01	1.53E+00	9.20E-01	Use 95% Student's-t UCL
TH-228	pCi/g	52	0	3.14E-01-1.38E+00	IA5-B03	0-0.5	7.47E-01	5.33E-03-1.49E-01	1.06E+00	7.94E-01	Use 95% Student's-t UCL
TH-230	pCi/g	52	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.62E-01	1.24E-02-8.53E-02	1.12E+00	1.03E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	53	0	2.72E-01-2.20E+00	IA6-12	0-0.5	7.21E-01	8.93E-03-8.35E-02	1.02E+00	7.83E-01	Use 95% Student's-t UCL
U-234	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.33E+00	1.52E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	53	53	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.35E+00	3.39E-01-4.18E+00	1.50E+00	1.52E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	53	52	3.53E-01-3.53E-01	IA6-19	1.1-1.6	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	53	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.18E+00	3.98E-01-4.74E+00	1.40E+00	2.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	53	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.47E-01	8.06E-02-4.45E-01	1.53E+00	9.21E-01	Use 95% Student's-t UCL
TH-228	pCi/g	51	0	3.14E-01-1.38E+00	IA5-B03	0.7-1.2	7.56E-01	5.33E-03-1.49E-01	1.06E+00	8.06E-01	Use 95% Student's-t UCL
TH-230	pCi/g	52	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.66E-01	1.24E-02-8.70E-02	1.12E+00	1.04E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	53	0	3.27E-01-2.20E+00	IA6-12	1-1.5	7.44E-01	8.93E-03-8.52E-02	1.02E+00	8.08E-01	Use 95% Student's-t UCL
U-234	pCi/g	53	0	6.18E-02-5.87E+00	IA3-6	0-0.5	1.29E+00	1.52E-02-4.18E+00	1.33E+00	1.48E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	53	53	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU2 - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
U-238	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.30E+00	3.39E-01-4.18E+00	1.50E+00	1.47E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-2') - Original Depths-Soils Only											
AM-241	pCi/g	53	52	3.53E-01-3.53E-01	IA6-19	1.1-1.6	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	53	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.18E+00	3.98E-01-4.74E+00	1.40E+00	2.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	53	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.47E-01	8.06E-02-4.45E-01	1.53E+00	9.21E-01	Use 95% Student's-t UCL
TH-228	pCi/g	51	0	3.14E-01-1.38E+00	IA5-B03	0.7-1.2	7.56E-01	5.33E-03-1.49E-01	1.06E+00	8.06E-01	Use 95% Student's-t UCL
TH-230	pCi/g	52	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.66E-01	1.24E-02-8.70E-02	1.12E+00	1.04E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	53	0	3.27E-01-2.20E+00	IA6-12	1-1.5	7.44E-01	8.93E-03-8.52E-02	1.02E+00	8.08E-01	Use 95% Student's-t UCL
U-234	pCi/g	53	0	6.18E-02-5.87E+00	IA3-6	0-0.5	1.29E+00	1.52E-02-4.18E+00	1.33E+00	1.48E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	53	53	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	53	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.30E+00	3.39E-01-4.18E+00	1.50E+00	1.47E+00	Use 95% Approximate Gamma UCL
EU2 - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	75	74	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	75	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	3.58E-01-4.74E+00	1.40E+00	2.36E+00	Use 95% Student's-t UCL
RA-228	pCi/g	75	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.45E-01	6.94E-02-4.45E-01	1.53E+00	9.02E-01	Use 95% Student's-t UCL
TH-228	pCi/g	73	0	2.85E-01-1.38E+00	IA5-B03	0-0.5	7.50E-01	5.33E-03-1.49E-01	1.06E+00	7.92E-01	Use 95% Student's-t UCL
TH-230	pCi/g	74	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.64E-01	1.24E-02-8.70E-02	1.12E+00	1.02E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	75	0	2.42E-01-2.20E+00	IA6-12	0-0.5	7.29E-01	8.93E-03-8.52E-02	1.02E+00	7.79E-01	Use 95% Student's-t UCL
U-234	pCi/g	75	0	6.18E-02-5.87E+00	IA3-6	0-0.5	1.25E+00	1.52E-02-4.18E+00	1.33E+00	1.39E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	75	75	-	-	-	-	9.52E-02-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	75	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.26E+00	3.39E-01-4.18E+00	1.50E+00	1.41E+00	Use 95% Student's-t UCL
EU2 - Surface Soils (0-2') - Top Void Removed-Soils Only											
AM-241	pCi/g	75	74	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	75	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	3.58E-01-4.74E+00	1.40E+00	2.36E+00	Use 95% Student's-t UCL
RA-228	pCi/g	75	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.45E-01	6.94E-02-4.45E-01	1.53E+00	9.02E-01	Use 95% Student's-t UCL
TH-228	pCi/g	73	0	2.85E-01-1.38E+00	IA5-B03	0-0.5	7.50E-01	5.33E-03-1.49E-01	1.06E+00	7.92E-01	Use 95% Student's-t UCL
TH-230	pCi/g	74	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.64E-01	1.24E-02-8.70E-02	1.12E+00	1.02E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	75	0	2.42E-01-2.20E+00	IA6-12	0-0.5	7.29E-01	8.93E-03-8.52E-02	1.02E+00	7.79E-01	Use 95% Student's-t UCL
U-234	pCi/g	75	0	6.18E-02-5.87E+00	IA3-6	0-0.5	1.25E+00	1.52E-02-4.18E+00	1.33E+00	1.39E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	75	75	-	-	-	-	9.52E-02-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	75	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.26E+00	3.39E-01-4.18E+00	1.50E+00	1.41E+00	Use 95% Student's-t UCL
EU2 - Surface Soils (0-2') - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	79	78	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	79	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	3.58E-01-4.74E+00	1.40E+00	2.35E+00	Use 95% Student's-t UCL
RA-228	pCi/g	79	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.58E-01	6.94E-02-4.45E-01	1.53E+00	9.14E-01	Use 95% Student's-t UCL
TH-228	pCi/g	77	0	2.85E-01-1.38E+00	IA5-B03	0-0.5	7.54E-01	5.33E-03-1.49E-01	1.06E+00	7.94E-01	Use 95% Student's-t UCL

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Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU2 - Surface Soils (0-2') - All Voids Removed - Combined Soil and Sediment											
TH-230	pCi/g	78	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.67E-01	1.24E-02-8.70E-02	1.12E+00	1.02E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	79	0	2.42E-01-2.20E+00	IA6-12	0-0.5	7.28E-01	8.93E-03-8.52E-02	1.02E+00	7.77E-01	Use 95% Student's-t UCL
U-234	pCi/g	79	0	6.18E-02-5.87E+00	IA3-6	0-0.5	1.28E+00	1.52E-02-4.18E+00	1.33E+00	1.42E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	79	79	-	-	-	-	9.52E-02-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	79	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.29E+00	3.39E-01-4.18E+00	1.50E+00	1.43E+00	Use 95% Student's-t UCL
EU2 - Surface Soils (0-2') - All Voids Removed-Soils Only											
AM-241	pCi/g	79	78	3.53E-01-3.53E-01	IA6-19	0-0.5	3.53E-01	3.00E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	79	0	8.04E-01-6.96E+00	IA3-6	0-0.5	2.15E+00	3.58E-01-4.74E+00	1.40E+00	2.35E+00	Use 95% Student's-t UCL
RA-228	pCi/g	79	0	3.58E-01-1.85E+00	IA3-6	0-0.5	8.58E-01	6.94E-02-4.45E-01	1.53E+00	9.14E-01	Use 95% Student's-t UCL
TH-228	pCi/g	77	0	2.85E-01-1.38E+00	IA5-B03	0-0.5	7.54E-01	5.33E-03-1.49E-01	1.06E+00	7.94E-01	Use 95% Student's-t UCL
TH-230	pCi/g	78	0	3.41E-01-2.08E+00	IA3-2	0-0.5	9.67E-01	1.24E-02-8.70E-02	1.12E+00	1.02E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	79	0	2.42E-01-2.20E+00	IA6-12	0-0.5	7.28E-01	8.93E-03-8.52E-02	1.02E+00	7.77E-01	Use 95% Student's-t UCL
U-234	pCi/g	79	0	6.18E-02-5.87E+00	IA3-6	0-0.5	1.28E+00	1.52E-02-4.18E+00	1.33E+00	1.42E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	79	79	-	-	-	-	9.52E-02-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	79	0	4.68E-01-5.87E+00	IA3-6	0-0.5	1.29E+00	3.39E-01-4.18E+00	1.50E+00	1.43E+00	Use 95% Student's-t UCL
EU2 (rest of landfill) - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	293	279	3.15E-02-6.05E-01	IA4-16	13-14	2.11E-01	2.71E-02-3.53E-01	8.12E-02	4.63E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	2.21E-01-2.21E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	293	4	6.92E-01-9.99E+00	IA4-21	5.5-6.5	2.05E+00	3.58E-01-4.74E+00	1.66E+00	2.14E+00	95% KM (BCA) UCL
RA-228	pCi/g	293	0	2.82E-01-3.20E+00	IA3-4	2-3	8.81E-01	5.63E-02-4.45E-01	1.32E+00	9.15E-01	Use 95% Student's-t UCL
TH-228	pCi/g	289	0	2.85E-01-3.48E+00	IA4-B02	16.8-17.8	7.70E-01	3.99E-03-2.70E-01	1.14E+00	8.01E-01	Use 95% Student's-t UCL
TH-230	pCi/g	284	0	3.41E-01-3.20E+00	IA4-B02	16.8-17.8	9.59E-01	6.63E-03-1.41E-01	1.26E+00	9.95E-01	Use 95% Student's-t UCL
TH-232	pCi/g	293	0	2.42E-01-2.73E+00	IA4-B02	16.8-17.8	7.50E-01	3.30E-03-1.32E-01	1.02E+00	7.79E-01	Use 95% Student's-t UCL
U-234	pCi/g	293	5	3.02E-02-8.45E+00	IA4-21	5.5-6.5	1.25E+00	1.52E-02-4.18E+00	1.50E+00	1.33E+00	95% KM (BCA) UCL
U-235	pCi/g	293	291	1.14E-01-1.45E-01	IA6-11	12.5-14	1.29E-01	9.52E-02-1.17E+00	1.69E-01	1.16E-01	95% KM (t) UCL
U-238	pCi/g	293	5	3.38E-01-8.45E+00	IA4-21	5.5-6.5	1.26E+00	2.74E-01-4.18E+00	1.62E+00	1.33E+00	95% KM (BCA) UCL
EU2 (rest of landfill) - All Depths-Soils Only											
AM-241	pCi/g	293	279	3.15E-02-6.05E-01	IA4-16	13-14	2.11E-01	2.71E-02-3.53E-01	8.12E-02	4.63E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	2.21E-01-2.21E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	293	4	6.92E-01-9.99E+00	IA4-21	5.5-6.5	2.05E+00	3.58E-01-4.74E+00	1.66E+00	2.14E+00	95% KM (BCA) UCL
RA-228	pCi/g	293	0	2.82E-01-3.20E+00	IA3-4	2-3	8.81E-01	5.63E-02-4.45E-01	1.32E+00	9.15E-01	Use 95% Student's-t UCL
TH-228	pCi/g	289	0	2.85E-01-3.48E+00	IA4-B02	16.8-17.8	7.70E-01	3.99E-03-2.70E-01	1.14E+00	8.01E-01	Use 95% Student's-t UCL
TH-230	pCi/g	284	0	3.41E-01-3.20E+00	IA4-B02	16.8-17.8	9.59E-01	6.63E-03-1.41E-01	1.26E+00	9.95E-01	Use 95% Student's-t UCL
TH-232	pCi/g	293	0	2.42E-01-2.73E+00	IA4-B02	16.8-17.8	7.50E-01	3.30E-03-1.32E-01	1.02E+00	7.79E-01	Use 95% Student's-t UCL
U-234	pCi/g	293	5	3.02E-02-8.45E+00	IA4-21	5.5-6.5	1.25E+00	1.52E-02-4.18E+00	1.50E+00	1.33E+00	95% KM (BCA) UCL
U-235	pCi/g	293	291	1.14E-01-1.45E-01	IA6-11	12.5-14	1.29E-01	9.52E-02-1.17E+00	1.69E-01	1.16E-01	95% KM (t) UCL

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU2 (rest of landfill) - All Depths-Soils Only											
U-238	pCi/g	293	5	3.38E-01-8.45E+00	IA4-21	5.5-6.5	1.26E+00	2.74E-01-4.18E+00	1.62E+00	1.33E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	21	20	5.79E-02-5.79E-02	IA3-5	0-0.5	5.79E-02	3.62E-02-2.06E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	27	0	6.70E-01-7.01E+00	IA2-DOE-B3	0-0.5	2.27E+00	1.40E-01-2.52E+00	1.40E+00	2.70E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	27	0	4.62E-01-1.82E+00	SW/SD-08	0-0	1.01E+00	8.32E-02-1.57E+00	1.53E+00	1.11E+00	Use 95% Student's-t UCL
TH-228	pCi/g	26	0	4.39E-01-1.47E+00	IA3-18	0-0.5	8.64E-01	5.42E-03-1.28E-01	1.06E+00	9.41E-01	Use 95% Student's-t UCL
TH-230	pCi/g	27	0	5.14E-01-1.59E+00	IA2-19	0-0.5	1.08E+00	1.30E-02-1.30E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL
TH-232	pCi/g	27	0	4.41E-01-1.84E+00	IA3-18	0-0.5	8.14E-01	1.27E-02-1.11E-01	1.02E+00	9.10E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	27	2	5.50E-01-4.75E+00	SW/SD-08	0-0	1.54E+00	6.56E-02-2.20E+00	1.33E+00	2.24E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	27	23	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-6.44E-01	1.89E-01	1.78E-01	95% KM (t) UCL
U-238	pCi/g	27	4	5.50E-01-4.43E+00	SW/SD-08	0-0	1.56E+00	3.27E-02-2.20E+00	1.50E+00	1.78E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - Original Depths-Soils Only											
AM-241	pCi/g	21	20	5.79E-02-5.79E-02	IA3-5	0-0.5	5.79E-02	3.62E-02-2.06E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	21	0	1.10E+00-7.01E+00	IA2-DOE-B3	0-0.5	2.58E+00	4.86E-01-2.52E+00	1.40E+00	3.08E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	21	0	4.62E-01-1.43E+00	IA2-18	0-0.5	9.16E-01	8.32E-02-3.82E-01	1.53E+00	9.99E-01	Use 95% Student's-t UCL
TH-228	pCi/g	20	0	4.39E-01-1.47E+00	IA3-18	0-0.5	8.78E-01	5.42E-03-9.49E-02	1.06E+00	9.73E-01	Use 95% Student's-t UCL
TH-230	pCi/g	21	0	7.41E-01-1.59E+00	IA2-19	0-0.5	1.14E+00	1.30E-02-5.92E-02	1.12E+00	1.25E+00	Use 95% Student's-t UCL
TH-232	pCi/g	21	0	4.41E-01-1.84E+00	IA3-18	0-0.5	8.49E-01	1.27E-02-8.45E-02	1.02E+00	9.70E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	21	2	5.50E-01-3.03E+00	IA2-18	0-0.5	1.41E+00	3.48E-01-2.20E+00	1.33E+00	1.64E+00	95% KM (BCA) UCL
U-235	pCi/g	21	21	-	-	-	-	1.25E-01-6.44E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	21	4	5.50E-01-3.03E+00	IA2-18	0-0.5	1.45E+00	3.48E-01-2.20E+00	1.50E+00	1.63E+00	95% KM (t) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - Original Depths-Sediment Only											
RA-226	pCi/g	6	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.19E+00	1.40E-01-7.87E-01	1.40E+00	1.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	6	0	9.67E-01-1.82E+00	SW/SD-08	0-0	1.34E+00	2.79E-01-1.57E+00	1.53E+00	1.58E+00	Use 95% Student's-t UCL
TH-228	pCi/g	6	0	5.88E-01-1.02E+00	SW/SD-10	0-0	8.19E-01	9.54E-02-1.28E-01	1.06E+00	9.66E-01	Use 95% Student's-t UCL
TH-230	pCi/g	6	0	5.14E-01-1.14E+00	SW/SD-07	0-0	8.71E-01	5.67E-02-1.30E-01	1.12E+00	1.06E+00	Use 95% Student's-t UCL
TH-232	pCi/g	6	0	4.85E-01-8.63E-01	SW/SD-08	0-0	6.90E-01	4.32E-02-1.11E-01	1.02E+00	8.03E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	6	0	8.34E-01-4.75E+00	SW/SD-08	0-0	1.93E+00	6.56E-02-1.35E-01	1.33E+00	3.73E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	6	2	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-1.17E-01	1.89E-01	2.80E-01	95% KM (t) UCL
U-238	pCi/g	6	0	9.55E-01-4.43E+00	SW/SD-08	0-0	1.88E+00	3.27E-02-9.43E-02	1.50E+00	3.48E+00	Use 95% Approximate Gamma UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	12	12	-	-	-	-	3.80E-02-2.06E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	18	0	6.70E-01-7.01E+00	IA2-DOE-B3	0-0.5	2.35E+00	1.40E-01-2.52E+00	1.40E+00	3.06E+00	Use 95% Approximate Gamma UCL
RA-228	pCi/g	18	0	6.84E-01-1.82E+00	SW/SD-08	0-0	1.10E+00	8.32E-02-1.57E+00	1.53E+00	1.22E+00	Use 95% Student's-t UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - Original Depths - Combined Soil and Sediment											
TH-228	pCi/g	17	0	4.39E-01-1.37E+00	IA3-12	0-0.5	8.57E-01	5.42E-03-1.28E-01	1.06E+00	9.52E-01	Use 95% Student's-t UCL
TH-230	pCi/g	18	0	5.14E-01-1.59E+00	IA2-19	0-0.5	1.15E+00	1.30E-02-1.30E-01	1.12E+00	1.28E+00	Use 95% Student's-t UCL
TH-232	pCi/g	18	0	4.67E-01-1.48E+00	IA3-12	0-0.5	7.84E-01	1.27E-02-1.11E-01	1.02E+00	8.82E-01	Use 95% Approximate Gamma UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	18	2	5.50E-01-4.75E+00	SW/SD-08	0-0	1.61E+00	6.56E-02-2.20E+00	1.33E+00	2.01E+00	95% KM (BCA) UCL
U-235	pCi/g	18	14	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-6.44E-01	1.89E-01	2.06E-01	95% KM (t) UCL
U-238	pCi/g	18	4	5.50E-01-4.43E+00	SW/SD-08	0-0	1.66E+00	3.27E-02-2.20E+00	1.50E+00	1.91E+00	95% KM (Percentile Bootstrap) UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - Original Depths-Soils Only											
AM-241	pCi/g	12	12	-	-	-	-	3.80E-02-2.06E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	12	0	1.10E+00-7.01E+00	IA2-DOE-B3	0-0.5	2.93E+00	4.86E-01-2.52E+00	1.40E+00	3.79E+00	Use 95% Student's-t UCL
RA-228	pCi/g	12	0	6.84E-01-1.43E+00	IA2-18	0-0.5	9.81E-01	8.32E-02-3.82E-01	1.53E+00	1.09E+00	Use 95% Student's-t UCL
TH-228	pCi/g	11	0	4.39E-01-1.37E+00	IA3-12	0-0.5	8.78E-01	5.42E-03-9.49E-02	1.06E+00	1.02E+00	Use 95% Student's-t UCL
TH-230	pCi/g	12	0	8.40E-01-1.59E+00	IA2-19	0-0.5	1.29E+00	1.30E-02-5.92E-02	1.12E+00	1.42E+00	Use 95% Student's-t UCL
TH-232	pCi/g	12	0	4.67E-01-1.48E+00	IA3-12	0-0.5	8.31E-01	1.27E-02-4.72E-02	1.02E+00	9.65E-01	Use 95% Student's-t UCL
U-234	pCi/g	12	2	5.50E-01-3.03E+00	IA2-18	0-0.5	1.41E+00	3.48E-01-2.20E+00	1.33E+00	1.74E+00	95% KM (t) UCL
U-235	pCi/g	12	12	-	-	-	-	1.25E-01-6.44E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	12	4	5.50E-01-3.03E+00	IA2-18	0-0.5	1.50E+00	3.48E-01-2.20E+00	1.50E+00	1.77E+00	95% KM (t) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	62	60	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.14E-01	8.00E-02	4.91E-02	95% KM (t) UCL
RA-226	pCi/g	68	2	6.70E-01-1.21E+01	IA1-20	0-0.5	2.45E+00	1.40E-01-2.52E+00	1.40E+00	3.25E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	68	0	4.01E-01-1.86E+00	IA1-20	0-0.5	9.82E-01	6.20E-02-1.57E+00	1.53E+00	1.05E+00	Use 95% Student's-t UCL
TH-228	pCi/g	67	0	3.25E-01-1.79E+00	IA1-21	0-0.5	8.76E-01	5.42E-03-1.68E-01	1.06E+00	9.28E-01	Use 95% Student's-t UCL
TH-230	pCi/g	68	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.14E+00	1.30E-02-1.30E-01	1.12E+00	1.22E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	68	0	3.70E-01-1.84E+00	IA3-18	0-0.5	8.25E-01	1.10E-02-1.11E-01	1.02E+00	8.85E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	68	5	5.71E-02-8.39E+00	IA1-20	0-0.5	1.66E+00	1.84E-02-2.20E+00	1.33E+00	2.25E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	68	63	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.73E-01	95% KM (t) UCL
U-238	pCi/g	68	8	5.50E-01-8.39E+00	IA1-20	0-0.5	1.74E+00	3.27E-02-2.20E+00	1.50E+00	2.27E+00	95% KM (Chebyshev) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - Top Void Removed-Soils Only											
AM-241	pCi/g	62	60	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.14E-01	8.00E-02	4.91E-02	95% KM (t) UCL
RA-226	pCi/g	62	2	9.50E-01-1.21E+01	IA1-20	0-0.5	2.58E+00	4.27E-01-2.52E+00	1.40E+00	3.42E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	62	0	4.01E-01-1.86E+00	IA1-20	0-0.5	9.47E-01	6.20E-02-3.82E-01	1.53E+00	1.01E+00	Use 95% Student's-t UCL
TH-228	pCi/g	61	0	3.25E-01-1.79E+00	IA1-21	0-0.5	8.82E-01	5.42E-03-1.68E-01	1.06E+00	9.38E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	62	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.17E+00	1.30E-02-9.04E-02	1.12E+00	1.26E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	62	0	3.70E-01-1.84E+00	IA3-18	0-0.5	8.38E-01	1.10E-02-8.45E-02	1.02E+00	9.03E-01	Use 95% Student's-t UCL
U-234	pCi/g	62	5	5.71E-02-8.39E+00	IA1-20	0-0.5	1.63E+00	1.84E-02-2.20E+00	1.33E+00	2.24E+00	95% KM (Chebyshev) UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - Top Void Removed-Soils Only											
U-235	pCi/g	62	61	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.12E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	62	8	5.50E-01-8.39E+00	IA1-20	0-0.5	1.72E+00	3.48E-01-2.20E+00	1.50E+00	2.27E+00	95% KM (Chebyshev) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - Top Void Removed-Sediment Only											
RA-226	pCi/g	6	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.19E+00	1.40E-01-7.87E-01	1.40E+00	1.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	6	0	9.67E-01-1.82E+00	SW/SD-08	0-0	1.34E+00	2.79E-01-1.57E+00	1.53E+00	1.58E+00	Use 95% Student's-t UCL
TH-228	pCi/g	6	0	5.88E-01-1.02E+00	SW/SD-10	0-0	8.19E-01	9.54E-02-1.28E-01	1.06E+00	9.66E-01	Use 95% Student's-t UCL
TH-230	pCi/g	6	0	5.14E-01-1.14E+00	SW/SD-07	0-0	8.71E-01	5.67E-02-1.30E-01	1.12E+00	1.06E+00	Use 95% Student's-t UCL
TH-232	pCi/g	6	0	4.85E-01-8.63E-01	SW/SD-08	0-0	6.90E-01	4.32E-02-1.11E-01	1.02E+00	8.03E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	6	0	8.34E-01-4.75E+00	SW/SD-08	0-0	1.93E+00	6.56E-02-1.35E-01	1.33E+00	3.73E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	6	2	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-1.17E-01	1.89E-01	2.80E-01	95% KM (t) UCL
U-238	pCi/g	6	0	9.55E-01-4.43E+00	SW/SD-08	0-0	1.88E+00	3.27E-02-9.43E-02	1.50E+00	3.48E+00	Use 95% Approximate Gamma UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	35	35	-	-	-	-	3.55E-02-2.14E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	41	2	6.70E-01-1.21E+01	IA1-20	0-0.5	2.72E+00	1.40E-01-2.52E+00	1.40E+00	3.21E+00	95% KM (BCA) UCL
RA-228	pCi/g	41	0	4.01E-01-1.86E+00	IA1-20	0-0.5	1.08E+00	6.75E-02-1.57E+00	1.53E+00	1.17E+00	Use 95% Student's-t UCL
TH-228	pCi/g	40	0	4.39E-01-1.79E+00	IA1-21	0-0.5	9.18E-01	5.42E-03-1.68E-01	1.06E+00	9.94E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	41	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.25E+00	1.30E-02-1.30E-01	1.12E+00	1.39E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	41	0	4.67E-01-1.70E+00	IA1-21	0-0.5	8.63E-01	1.10E-02-1.11E-01	1.02E+00	9.45E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	41	5	6.02E-02-8.39E+00	IA1-20	0-0.5	1.88E+00	2.20E-02-2.20E+00	1.33E+00	2.20E+00	95% KM (BCA) UCL
U-235	pCi/g	41	36	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	2.11E-01	95% KM (t) UCL
U-238	pCi/g	41	8	5.50E-01-8.39E+00	IA1-20	0-0.5	1.99E+00	3.27E-02-2.20E+00	1.50E+00	2.22E+00	95% KM (BCA) UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - Top Void Removed-Soils Only											
AM-241	pCi/g	35	35	-	-	-	-	3.55E-02-2.14E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	35	2	9.50E-01-1.21E+01	IA1-20	0-0.5	2.99E+00	4.27E-01-2.52E+00	1.40E+00	4.36E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	35	0	4.01E-01-1.86E+00	IA1-20	0-0.5	1.04E+00	6.75E-02-3.82E-01	1.53E+00	1.13E+00	Use 95% Student's-t UCL
TH-228	pCi/g	34	0	4.39E-01-1.79E+00	IA1-21	0-0.5	9.36E-01	5.42E-03-1.68E-01	1.06E+00	1.02E+00	Use 95% Student's-t UCL
TH-230	pCi/g	35	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.32E+00	1.30E-02-9.04E-02	1.12E+00	1.47E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	35	0	4.67E-01-1.70E+00	IA1-21	0-0.5	8.93E-01	1.10E-02-8.22E-02	1.02E+00	9.87E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	35	5	6.02E-02-8.39E+00	IA1-20	0-0.5	1.87E+00	2.20E-02-2.20E+00	1.33E+00	2.18E+00	95% KM (BCA) UCL
U-235	pCi/g	35	34	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.25E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	35	8	5.50E-01-8.39E+00	IA1-20	0-0.5	2.01E+00	3.48E-01-2.20E+00	1.50E+00	2.22E+00	95% KM (Percentile Bootstrap) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	62	60	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.14E-01	8.00E-02	4.91E-02	95% KM (t) UCL
RA-226	pCi/g	68	2	6.70E-01-1.21E+01	IA1-20	0-0.5	2.45E+00	1.40E-01-2.52E+00	1.40E+00	3.25E+00	95% KM (Chebyshev) UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
RA-228	pCi/g	68	0	4.01E-01-1.86E+00	IA1-20	0-0.5	9.82E-01	6.20E-02-1.57E+00	1.53E+00	1.05E+00	Use 95% Student's-t UCL
TH-228	pCi/g	67	0	3.25E-01-1.79E+00	IA1-21	0-0.5	8.76E-01	5.42E-03-1.68E-01	1.06E+00	9.28E-01	Use 95% Student's-t UCL
TH-230	pCi/g	68	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.14E+00	1.30E-02-1.30E-01	1.12E+00	1.22E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	68	0	3.70E-01-1.84E+00	IA3-18	0-0.5	8.25E-01	1.10E-02-1.11E-01	1.02E+00	8.85E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	68	5	5.71E-02-8.39E+00	IA1-20	0-0.5	1.66E+00	1.84E-02-2.20E+00	1.33E+00	2.25E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	68	63	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.73E-01	95% KM (t) UCL
U-238	pCi/g	68	8	5.50E-01-8.39E+00	IA1-20	0-0.5	1.74E+00	3.27E-02-2.20E+00	1.50E+00	2.27E+00	95% KM (Chebyshev) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - All Voids Removed-Soils Only											
AM-241	pCi/g	62	60	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.14E-01	8.00E-02	4.91E-02	95% KM (t) UCL
RA-226	pCi/g	62	2	9.50E-01-1.21E+01	IA1-20	0-0.5	2.58E+00	4.27E-01-2.52E+00	1.40E+00	3.42E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	62	0	4.01E-01-1.86E+00	IA1-20	0-0.5	9.47E-01	6.20E-02-3.82E-01	1.53E+00	1.01E+00	Use 95% Student's-t UCL
TH-228	pCi/g	61	0	3.25E-01-1.79E+00	IA1-21	0-0.5	8.82E-01	5.42E-03-1.68E-01	1.06E+00	9.38E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	62	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.17E+00	1.30E-02-9.04E-02	1.12E+00	1.26E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	62	0	3.70E-01-1.84E+00	IA3-18	0-0.5	8.38E-01	1.10E-02-8.45E-02	1.02E+00	9.03E-01	Use 95% Student's-t UCL
U-234	pCi/g	62	5	5.71E-02-8.39E+00	IA1-20	0-0.5	1.63E+00	1.84E-02-2.20E+00	1.33E+00	2.24E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	62	61	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.12E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	62	8	5.50E-01-8.39E+00	IA1-20	0-0.5	1.72E+00	3.48E-01-2.20E+00	1.50E+00	2.27E+00	95% KM (Chebyshev) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-6") - All Voids Removed-Sediment Only											
RA-226	pCi/g	6	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.19E+00	1.40E-01-7.87E-01	1.40E+00	1.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	6	0	9.67E-01-1.82E+00	SW/SD-08	0-0	1.34E+00	2.79E-01-1.57E+00	1.53E+00	1.58E+00	Use 95% Student's-t UCL
TH-228	pCi/g	6	0	5.88E-01-1.02E+00	SW/SD-10	0-0	8.19E-01	9.54E-02-1.28E-01	1.06E+00	9.66E-01	Use 95% Student's-t UCL
TH-230	pCi/g	6	0	5.14E-01-1.14E+00	SW/SD-07	0-0	8.71E-01	5.67E-02-1.30E-01	1.12E+00	1.06E+00	Use 95% Student's-t UCL
TH-232	pCi/g	6	0	4.85E-01-8.63E-01	SW/SD-08	0-0	6.90E-01	4.32E-02-1.11E-01	1.02E+00	8.03E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	6	0	8.34E-01-4.75E+00	SW/SD-08	0-0	1.93E+00	6.56E-02-1.35E-01	1.33E+00	3.73E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	6	2	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-1.17E-01	1.89E-01	2.80E-01	95% KM (t) UCL
U-238	pCi/g	6	0	9.55E-01-4.43E+00	SW/SD-08	0-0	1.88E+00	3.27E-02-9.43E-02	1.50E+00	3.48E+00	Use 95% Approximate Gamma UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	35	35	-	-	-	-	3.55E-02-2.14E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	41	2	6.70E-01-1.21E+01	IA1-20	0-0.5	2.72E+00	1.40E-01-2.52E+00	1.40E+00	3.19E+00	95% KM (BCA) UCL
RA-228	pCi/g	41	0	4.01E-01-1.86E+00	IA1-20	0-0.5	1.08E+00	6.75E-02-1.57E+00	1.53E+00	1.17E+00	Use 95% Student's-t UCL
TH-228	pCi/g	40	0	4.39E-01-1.79E+00	IA1-21	0-0.5	9.18E-01	5.42E-03-1.68E-01	1.06E+00	9.94E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	41	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.25E+00	1.30E-02-1.30E-01	1.12E+00	1.39E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	41	0	4.67E-01-1.70E+00	IA1-21	0-0.5	8.63E-01	1.10E-02-1.11E-01	1.02E+00	9.45E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
U-234	pCi/g	41	5	6.02E-02-8.39E+00	IA1-20	0-0.5	1.88E+00	2.20E-02-2.20E+00	1.33E+00	2.14E+00	95% KM (BCA) UCL
U-235	pCi/g	41	36	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	2.11E-01	95% KM (t) UCL
U-238	pCi/g	41	8	5.50E-01-8.39E+00	IA1-20	0-0.5	1.99E+00	3.27E-02-2.20E+00	1.50E+00	2.22E+00	95% KM (BCA) UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-6") - All Voids Removed-Soils Only											
AM-241	pCi/g	35	35	-	-	-	-	3.55E-02-2.14E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	35	2	9.50E-01-1.21E+01	IA1-20	0-0.5	2.99E+00	4.27E-01-2.52E+00	1.40E+00	4.36E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	35	0	4.01E-01-1.86E+00	IA1-20	0-0.5	1.04E+00	6.75E-02-3.82E-01	1.53E+00	1.13E+00	Use 95% Student's-t UCL
TH-228	pCi/g	34	0	4.39E-01-1.79E+00	IA1-21	0-0.5	9.36E-01	5.42E-03-1.68E-01	1.06E+00	1.02E+00	Use 95% Student's-t UCL
TH-230	pCi/g	35	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.32E+00	1.30E-02-9.04E-02	1.12E+00	1.47E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	35	0	4.67E-01-1.70E+00	IA1-21	0-0.5	8.93E-01	1.10E-02-8.22E-02	1.02E+00	9.87E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	35	5	6.02E-02-8.39E+00	IA1-20	0-0.5	1.87E+00	2.20E-02-2.20E+00	1.33E+00	2.22E+00	95% KM (BCA) UCL
U-235	pCi/g	35	34	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.25E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	35	8	5.50E-01-8.39E+00	IA1-20	0-0.5	2.01E+00	3.48E-01-2.20E+00	1.50E+00	2.22E+00	95% KM (Percentile Bootstrap) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	78	76	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	3.55E-02-2.34E-01	8.00E-02	4.83E-02	95% KM (t) UCL
RA-226	pCi/g	84	4	6.70E-01-1.43E+01	IA3-19	1-2	2.59E+00	1.40E-01-2.62E+00	1.40E+00	2.92E+00	95% KM (BCA) UCL
RA-228	pCi/g	84	0	4.01E-01-2.07E+00	IA3-19	1-2	1.02E+00	6.20E-02-1.57E+00	1.53E+00	1.08E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	83	0	3.25E-01-2.59E+00	IA3-19	1-2	8.91E-01	5.42E-03-1.68E-01	1.06E+00	9.47E-01	Use 95% Student's-t UCL
TH-230	pCi/g	84	0	5.14E-01-4.14E+00	IA1-20	1.1-1.6	1.17E+00	7.66E-03-1.30E-01	1.12E+00	1.27E+00	Use 95% Student's-t UCL
TH-232	pCi/g	84	0	3.70E-01-2.42E+00	IA3-19	1-2	8.34E-01	1.01E-02-1.11E-01	1.02E+00	8.93E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	84	8	5.71E-02-1.24E+01	IA3-19	1-2	1.86E+00	1.84E-02-2.40E+00	1.33E+00	2.13E+00	95% KM (BCA) UCL
U-235	pCi/g	84	79	1.20E-01-9.26E-01	IA1-20	1.1-1.6	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.66E-01	95% KM (t) UCL
U-238	pCi/g	84	12	5.50E-01-1.24E+01	IA3-19	1-2	1.94E+00	3.27E-02-2.40E+00	1.50E+00	2.16E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Original Depths-Soils Only											
AM-241	pCi/g	78	76	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	3.55E-02-2.34E-01	8.00E-02	4.83E-02	95% KM (t) UCL
RA-226	pCi/g	78	4	9.50E-01-1.43E+01	IA3-19	1-2	2.70E+00	3.62E-01-2.62E+00	1.40E+00	3.04E+00	95% KM (BCA) UCL
RA-228	pCi/g	78	0	4.01E-01-2.07E+00	IA3-19	1-2	9.96E-01	6.20E-02-4.69E-01	1.53E+00	1.05E+00	Use 95% Student's-t UCL
TH-228	pCi/g	77	0	3.25E-01-2.59E+00	IA3-19	1-2	8.97E-01	5.42E-03-1.68E-01	1.06E+00	9.56E-01	Use 95% Student's-t UCL
TH-230	pCi/g	78	0	5.59E-01-4.14E+00	IA1-20	1.1-1.6	1.20E+00	7.66E-03-9.04E-02	1.12E+00	1.30E+00	Use 95% Student's-t UCL
TH-232	pCi/g	78	0	3.70E-01-2.42E+00	IA3-19	1-2	8.46E-01	1.01E-02-8.45E-02	1.02E+00	9.08E-01	Use 95% Student's-t UCL
U-234	pCi/g	78	8	5.71E-02-1.24E+01	IA3-19	1-2	1.85E+00	1.84E-02-2.40E+00	1.33E+00	2.12E+00	95% KM (BCA) UCL
U-235	pCi/g	78	77	9.26E-01-9.26E-01	IA1-20	1.1-1.6	9.26E-01	1.25E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	78	12	5.50E-01-1.24E+01	IA3-19	1-2	1.95E+00	3.13E-01-2.40E+00	1.50E+00	2.21E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Original Depths-Sediment Only											
RA-226	pCi/g	6	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.19E+00	1.40E-01-7.87E-01	1.40E+00	1.46E+00	Use 95% Student's-t UCL

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Original Depths-Sediment Only											
RA-228	pCi/g	6	0	9.67E-01-1.82E+00	SW/SD-08	0-0	1.34E+00	2.79E-01-1.57E+00	1.53E+00	1.58E+00	Use 95% Student's-t UCL
TH-228	pCi/g	6	0	5.88E-01-1.02E+00	SW/SD-10	0-0	8.19E-01	9.54E-02-1.28E-01	1.06E+00	9.66E-01	Use 95% Student's-t UCL
TH-230	pCi/g	6	0	5.14E-01-1.14E+00	SW/SD-07	0-0	8.71E-01	5.67E-02-1.30E-01	1.12E+00	1.06E+00	Use 95% Student's-t UCL
TH-232	pCi/g	6	0	4.85E-01-8.63E-01	SW/SD-08	0-0	6.90E-01	4.32E-02-1.11E-01	1.02E+00	8.03E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	6	0	8.34E-01-4.75E+00	SW/SD-08	0-0	1.93E+00	6.56E-02-1.35E-01	1.33E+00	3.73E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	6	2	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-1.17E-01	1.89E-01	2.80E-01	95% KM (t) UCL
U-238	pCi/g	6	0	9.55E-01-4.43E+00	SW/SD-08	0-0	1.88E+00	3.27E-02-9.43E-02	1.50E+00	3.48E+00	Use 95% Approximate Gamma UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	45	45	-	-	-	-	3.55E-02-2.28E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	51	4	6.70E-01-1.43E+01	IA3-19	1-2	2.92E+00	1.40E-01-2.62E+00	1.40E+00	4.27E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	51	0	4.01E-01-2.07E+00	IA3-19	1-2	1.10E+00	6.75E-02-1.57E+00	1.53E+00	1.19E+00	Use 95% Student's-t UCL
TH-228	pCi/g	50	0	4.39E-01-2.59E+00	IA3-19	1-2	9.36E-01	5.42E-03-1.68E-01	1.06E+00	1.02E+00	Use 95% Student's-t UCL
TH-230	pCi/g	51	0	5.14E-01-4.14E+00	IA1-20	1.1-1.6	1.30E+00	7.66E-03-1.30E-01	1.12E+00	1.44E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	51	0	4.67E-01-2.42E+00	IA3-19	1-2	8.71E-01	1.10E-02-1.11E-01	1.02E+00	9.55E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	51	8	6.02E-02-1.24E+01	IA3-19	1-2	2.12E+00	2.20E-02-2.40E+00	1.33E+00	2.52E+00	95% KM (BCA) UCL
U-235	pCi/g	51	46	1.20E-01-9.26E-01	IA1-20	1.1-1.6	3.64E-01	4.05E-02-6.94E-01	1.89E-01	2.04E-01	95% KM (t) UCL
U-238	pCi/g	51	12	5.50E-01-1.24E+01	IA3-19	1-2	2.25E+00	3.27E-02-2.40E+00	1.50E+00	2.47E+00	95% KM (BCA) UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-2') - Original Depths-Soils Only											
AM-241	pCi/g	45	45	-	-	-	-	3.55E-02-2.28E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	45	4	9.50E-01-1.43E+01	IA3-19	1-2	3.17E+00	4.27E-01-2.62E+00	1.40E+00	4.64E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	45	0	4.01E-01-2.07E+00	IA3-19	1-2	1.07E+00	6.75E-02-4.69E-01	1.53E+00	1.16E+00	Use 95% Student's-t UCL
TH-228	pCi/g	44	0	4.39E-01-2.59E+00	IA3-19	1-2	9.52E-01	5.42E-03-1.68E-01	1.06E+00	1.04E+00	Use 95% Approximate Gamma UCL
TH-230	pCi/g	45	0	5.59E-01-4.14E+00	IA1-20	1.1-1.6	1.36E+00	7.66E-03-9.04E-02	1.12E+00	1.53E+00	Use 95% Student's-t UCL
TH-232	pCi/g	45	0	4.67E-01-2.42E+00	IA3-19	1-2	8.95E-01	1.10E-02-8.22E-02	1.02E+00	9.88E-01	Use 95% Student's-t UCL
U-234	pCi/g	45	8	6.02E-02-1.24E+01	IA3-19	1-2	2.15E+00	2.20E-02-2.40E+00	1.33E+00	3.28E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	45	44	9.26E-01-9.26E-01	IA1-20	1.1-1.6	9.26E-01	1.25E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	45	12	5.50E-01-1.24E+01	IA3-19	1-2	2.31E+00	3.48E-01-2.40E+00	1.50E+00	2.56E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	103	101	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.53E-01	8.00E-02	4.76E-02	95% KM (t) UCL
RA-226	pCi/g	109	4	6.70E-01-1.43E+01	IA3-19	1-2	2.64E+00	1.40E-01-2.62E+00	1.40E+00	2.94E+00	95% KM (BCA) UCL
RA-228	pCi/g	109	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.03E+00	6.20E-02-1.57E+00	1.53E+00	1.08E+00	Use 95% Student's-t UCL
TH-228	pCi/g	108	0	3.25E-01-2.69E+00	IA1-20	0.5-1.5	8.96E-01	5.42E-03-1.69E-01	1.06E+00	9.52E-01	Use 95% Student's-t UCL
TH-230	pCi/g	109	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.18E+00	7.66E-03-1.30E-01	1.12E+00	1.27E+00	Use 95% Student's-t UCL
TH-232	pCi/g	109	0	3.70E-01-2.55E+00	IA1-20	0.5-1.5	8.70E-01	1.01E-02-1.11E-01	1.02E+00	9.29E-01	Use 95% Student's-t UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	109	11	5.23E-02-1.24E+01	IA3-19	1-2	1.86E+00	1.84E-02-2.40E+00	1.33E+00	2.06E+00	95% KM (BCA) UCL
U-235	pCi/g	109	104	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.56E-01	95% KM (t) UCL
U-238	pCi/g	109	15	5.50E-01-1.24E+01	IA3-19	1-2	1.94E+00	3.27E-02-2.40E+00	1.50E+00	2.11E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Top Void Removed-Soils Only											
AM-241	pCi/g	103	101	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.53E-01	8.00E-02	4.76E-02	95% KM (t) UCL
RA-226	pCi/g	103	4	8.79E-01-1.43E+01	IA3-19	1-2	2.73E+00	3.62E-01-2.62E+00	1.40E+00	3.03E+00	95% KM (BCA) UCL
RA-228	pCi/g	103	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.01E+00	6.20E-02-4.69E-01	1.53E+00	1.07E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	102	0	3.25E-01-2.69E+00	IA1-20	0.5-1.5	9.01E-01	5.42E-03-1.69E-01	1.06E+00	9.59E-01	Use 95% Student's-t UCL
TH-230	pCi/g	103	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.19E+00	7.66E-03-9.51E-02	1.12E+00	1.29E+00	Use 95% Student's-t UCL
TH-232	pCi/g	103	0	3.70E-01-2.55E+00	IA1-20	0.5-1.5	8.80E-01	1.01E-02-9.76E-02	1.02E+00	9.42E-01	Use 95% Student's-t UCL
U-234	pCi/g	103	11	5.23E-02-1.24E+01	IA3-19	1-2	1.86E+00	1.84E-02-2.40E+00	1.33E+00	2.05E+00	95% KM (BCA) UCL
U-235	pCi/g	103	102	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.12E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	103	15	5.50E-01-1.24E+01	IA3-19	1-2	1.94E+00	3.13E-01-2.40E+00	1.50E+00	2.10E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - Top Void Removed-Sediment Only											
RA-226	pCi/g	6	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.19E+00	1.40E-01-7.87E-01	1.40E+00	1.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	6	0	9.67E-01-1.82E+00	SW/SD-08	0-0	1.34E+00	2.79E-01-1.57E+00	1.53E+00	1.58E+00	Use 95% Student's-t UCL
TH-228	pCi/g	6	0	5.88E-01-1.02E+00	SW/SD-10	0-0	8.19E-01	9.54E-02-1.28E-01	1.06E+00	9.66E-01	Use 95% Student's-t UCL
TH-230	pCi/g	6	0	5.14E-01-1.14E+00	SW/SD-07	0-0	8.71E-01	5.67E-02-1.30E-01	1.12E+00	1.06E+00	Use 95% Student's-t UCL
TH-232	pCi/g	6	0	4.85E-01-8.63E-01	SW/SD-08	0-0	6.90E-01	4.32E-02-1.11E-01	1.02E+00	8.03E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	6	0	8.34E-01-4.75E+00	SW/SD-08	0-0	1.93E+00	6.56E-02-1.35E-01	1.33E+00	3.73E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	6	2	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-1.17E-01	1.89E-01	2.80E-01	95% KM (t) UCL
U-238	pCi/g	6	0	9.55E-01-4.43E+00	SW/SD-08	0-0	1.88E+00	3.27E-02-9.43E-02	1.50E+00	3.48E+00	Use 95% Approximate Gamma UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	59	59	-	-	-	-	3.55E-02-2.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	65	4	6.70E-01-1.43E+01	IA3-19	1-2	3.07E+00	1.40E-01-2.62E+00	1.40E+00	4.26E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	65	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.12E+00	6.75E-02-1.57E+00	1.53E+00	1.20E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	64	0	4.39E-01-2.69E+00	IA1-20	0.5-1.5	9.62E-01	5.42E-03-1.68E-01	1.06E+00	1.05E+00	Use 95% Student's-t UCL
TH-230	pCi/g	65	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.33E+00	7.66E-03-1.30E-01	1.12E+00	1.47E+00	Use 95% Student's-t UCL
TH-232	pCi/g	65	0	4.67E-01-2.55E+00	IA1-20	0.5-1.5	9.34E-01	1.10E-02-1.11E-01	1.02E+00	1.02E+00	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	65	11	6.02E-02-1.24E+01	IA3-19	1-2	2.21E+00	2.20E-02-2.40E+00	1.33E+00	3.10E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	65	60	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.90E-01	95% KM (t) UCL
U-238	pCi/g	65	15	5.50E-01-1.24E+01	IA3-19	1-2	2.32E+00	3.27E-02-2.40E+00	1.50E+00	2.53E+00	95% KM (BCA) UCL

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Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-2') - Top Void Removed-Soils Only											
AM-241	pCi/g	59	59	-	-	-	-	3.55E-02-2.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	59	4	9.50E-01-1.43E+01	IA3-19	1-2	3.27E+00	4.27E-01-2.62E+00	1.40E+00	4.53E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	59	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.10E+00	6.75E-02-4.69E-01	1.53E+00	1.18E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	58	0	4.39E-01-2.69E+00	IA1-20	0.5-1.5	9.77E-01	5.42E-03-1.68E-01	1.06E+00	1.07E+00	Use 95% Student's-t UCL
TH-230	pCi/g	59	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.38E+00	7.66E-03-9.04E-02	1.12E+00	1.53E+00	Use 95% Student's-t UCL
TH-232	pCi/g	59	0	4.67E-01-2.55E+00	IA1-20	0.5-1.5	9.58E-01	1.10E-02-8.22E-02	1.02E+00	1.05E+00	Use 95% Student's-t UCL
U-234	pCi/g	59	11	6.02E-02-1.24E+01	IA3-19	1-2	2.24E+00	2.20E-02-2.40E+00	1.33E+00	3.19E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	59	58	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.25E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	59	15	5.50E-01-1.24E+01	IA3-19	1-2	2.38E+00	3.48E-01-2.40E+00	1.50E+00	2.51E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	110	108	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.53E-01	8.00E-02	4.75E-02	95% KM (t) UCL
RA-226	pCi/g	116	5	6.70E-01-1.43E+01	IA3-19	1-2	2.67E+00	1.40E-01-2.62E+00	1.40E+00	2.95E+00	95% KM (BCA) UCL
RA-228	pCi/g	116	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.04E+00	6.20E-02-1.57E+00	1.53E+00	1.09E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	115	0	3.25E-01-2.69E+00	IA1-20	0.5-1.5	9.04E-01	5.42E-03-1.69E-01	1.06E+00	9.57E-01	Use 95% Student's-t UCL
TH-230	pCi/g	116	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.18E+00	7.66E-03-1.30E-01	1.12E+00	1.27E+00	Use 95% Student's-t UCL
TH-232	pCi/g	116	0	3.70E-01-2.55E+00	IA1-20	0.5-1.5	8.70E-01	1.01E-02-1.13E-01	1.02E+00	9.26E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	116	11	5.23E-02-1.24E+01	IA3-19	1-2	1.87E+00	1.84E-02-2.40E+00	1.33E+00	2.04E+00	95% KM (BCA) UCL
U-235	pCi/g	116	111	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.55E-01	95% KM (t) UCL
U-238	pCi/g	116	15	5.50E-01-1.24E+01	IA3-19	1-2	1.94E+00	3.27E-02-2.40E+00	1.50E+00	2.07E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - All Voids Removed-Soils Only											
AM-241	pCi/g	110	108	4.54E-02-5.79E-02	IA3-5	0-0.5	5.16E-02	2.95E-02-2.53E-01	8.00E-02	4.75E-02	95% KM (t) UCL
RA-226	pCi/g	110	5	8.79E-01-1.43E+01	IA3-19	1-2	2.76E+00	3.62E-01-2.62E+00	1.40E+00	3.05E+00	95% KM (BCA) UCL
RA-228	pCi/g	110	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.02E+00	6.20E-02-4.69E-01	1.53E+00	1.08E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	109	0	3.25E-01-2.69E+00	IA1-20	0.5-1.5	9.09E-01	5.42E-03-1.69E-01	1.06E+00	9.64E-01	Use 95% Student's-t UCL
TH-230	pCi/g	110	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.20E+00	7.66E-03-9.82E-02	1.12E+00	1.29E+00	Use 95% Student's-t UCL
TH-232	pCi/g	110	0	3.70E-01-2.55E+00	IA1-20	0.5-1.5	8.80E-01	1.01E-02-1.13E-01	1.02E+00	9.38E-01	Use 95% Student's-t UCL
U-234	pCi/g	110	11	5.23E-02-1.24E+01	IA3-19	1-2	1.87E+00	1.84E-02-2.40E+00	1.33E+00	2.08E+00	95% KM (BCA) UCL
U-235	pCi/g	110	109	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.12E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	110	15	5.50E-01-1.24E+01	IA3-19	1-2	1.95E+00	3.13E-01-2.40E+00	1.50E+00	2.11E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - All Voids Removed-Sediment Only											
RA-226	pCi/g	6	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.19E+00	1.40E-01-7.87E-01	1.40E+00	1.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	6	0	9.67E-01-1.82E+00	SW/SD-08	0-0	1.34E+00	2.79E-01-1.57E+00	1.53E+00	1.58E+00	Use 95% Student's-t UCL
TH-228	pCi/g	6	0	5.88E-01-1.02E+00	SW/SD-10	0-0	8.19E-01	9.54E-02-1.28E-01	1.06E+00	9.66E-01	Use 95% Student's-t UCL
TH-230	pCi/g	6	0	5.14E-01-1.14E+00	SW/SD-07	0-0	8.71E-01	5.67E-02-1.30E-01	1.12E+00	1.06E+00	Use 95% Student's-t UCL
TH-232	pCi/g	6	0	4.85E-01-8.63E-01	SW/SD-08	0-0	6.90E-01	4.32E-02-1.11E-01	1.02E+00	8.03E-01	Use 95% Student's-t UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer ALL) - Surface Soils (0-2') - All Voids Removed-Sediment Only											
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	6	0	8.34E-01-4.75E+00	SW/SD-08	0-0	1.93E+00	6.56E-02-1.35E-01	1.33E+00	3.73E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	6	2	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-1.17E-01	1.89E-01	2.80E-01	95% KM (t) UCL
U-238	pCi/g	6	0	9.55E-01-4.43E+00	SW/SD-08	0-0	1.88E+00	3.27E-02-9.43E-02	1.50E+00	3.48E+00	Use 95% Approximate Gamma UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-2') - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	63	63	-	-	-	-	3.55E-02-2.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	69	5	6.70E-01-1.43E+01	IA3-19	1-2	3.08E+00	1.40E-01-2.62E+00	1.40E+00	4.18E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	69	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.13E+00	6.75E-02-1.57E+00	1.53E+00	1.20E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	68	0	4.39E-01-2.69E+00	IA1-20	0.5-1.5	9.65E-01	5.42E-03-1.68E-01	1.06E+00	1.05E+00	Use 95% Student's-t UCL
TH-230	pCi/g	69	0	5.14E-01-4.14E+00	IA1-20	0-0.5	1.32E+00	7.66E-03-1.30E-01	1.12E+00	1.45E+00	Use 95% Student's-t UCL
TH-232	pCi/g	69	0	4.67E-01-2.55E+00	IA1-20	0.5-1.5	9.26E-01	1.10E-02-1.11E-01	1.02E+00	1.01E+00	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	69	11	6.02E-02-1.24E+01	IA3-19	1-2	2.23E+00	2.20E-02-2.40E+00	1.33E+00	3.07E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	69	64	1.20E-01-9.26E-01	IA1-20	0-0.5	3.64E-01	4.05E-02-6.94E-01	1.89E-01	1.89E-01	95% KM (t) UCL
U-238	pCi/g	69	15	5.50E-01-1.24E+01	IA3-19	1-2	2.33E+00	3.27E-02-2.40E+00	1.50E+00	2.50E+00	95% KM (BCA) UCL
EU3 (100-ft buffer FILL ONLY) - Surface Soils (0-2') - All Voids Removed-Soils Only											
AM-241	pCi/g	63	63	-	-	-	-	3.55E-02-2.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	63	5	9.50E-01-1.43E+01	IA3-19	1-2	3.28E+00	4.27E-01-2.62E+00	1.40E+00	4.44E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	63	0	4.01E-01-2.26E+00	IA1-20	0.5-1.5	1.11E+00	6.75E-02-4.69E-01	1.53E+00	1.18E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	62	0	4.39E-01-2.69E+00	IA1-20	0.5-1.5	9.79E-01	5.42E-03-1.68E-01	1.06E+00	1.07E+00	Use 95% Student's-t UCL
TH-230	pCi/g	63	0	5.59E-01-4.14E+00	IA1-20	0-0.5	1.36E+00	7.66E-03-9.04E-02	1.12E+00	1.50E+00	Use 95% Student's-t UCL
TH-232	pCi/g	63	0	4.67E-01-2.55E+00	IA1-20	0.5-1.5	9.48E-01	1.10E-02-8.22E-02	1.02E+00	1.04E+00	Use 95% Student's-t UCL
U-234	pCi/g	63	11	6.02E-02-1.24E+01	IA3-19	1-2	2.26E+00	2.20E-02-2.40E+00	1.33E+00	3.16E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	63	62	9.26E-01-9.26E-01	IA1-20	0-0.5	9.26E-01	1.25E-01-6.94E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	63	15	5.50E-01-1.24E+01	IA3-19	1-2	2.38E+00	3.48E-01-2.40E+00	1.50E+00	2.56E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	318	315	4.54E-02-5.79E-02	IA3-5	0-0.5	5.21E-02	2.82E-02-2.66E-01	8.12E-02	4.60E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	6.34E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	9-10	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	324	14	6.70E-01-1.43E+01	IA3-19	1-2	2.34E+00	1.40E-01-2.94E+00	1.66E+00	2.43E+00	95% KM (BCA) UCL
RA-228	pCi/g	324	0	4.01E-01-3.34E+00	IA2-8	6-7	1.00E+00	4.96E-02-1.57E+00	1.32E+00	1.04E+00	Use 95% Student's-t UCL
TH-228	pCi/g	319	0	3.25E-01-3.04E+00	IA2-8	6-7	8.62E-01	5.42E-03-1.69E-01	1.14E+00	8.94E-01	Use 95% Student's-t UCL
TH-230	pCi/g	324	0	3.52E-01-5.75E+00	IA3-FL-1	12-13	1.08E+00	6.19E-03-1.30E-01	1.26E+00	1.13E+00	Use 95% Student's-t UCL
TH-232	pCi/g	324	0	2.79E-01-3.15E+00	IA2-8	6-7	8.35E-01	6.17E-03-1.13E-01	1.02E+00	8.68E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	324	44	3.06E-02-1.24E+01	IA3-19	1-2	1.53E+00	1.68E-02-2.81E+00	1.50E+00	1.55E+00	95% KM (BCA) UCL

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Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer ALL) - All Depths - Combined Soil and Sediment											
U-235	pCi/g	324	319	1.20E-01-9.26E-01	IA1-20	1.1-1.6	3.64E-01	4.05E-02-8.43E-01	1.69E-01	1.31E-01	95% KM (t) UCL
U-238	pCi/g	324	60	3.67E-01-1.24E+01	IA3-19	1-2	1.59E+00	3.27E-02-2.81E+00	1.62E+00	1.56E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - All Depths-Soils Only											
AM-241	pCi/g	318	315	4.54E-02-5.79E-02	IA3-5	0-0.5	5.21E-02	2.82E-02-2.66E-01	8.12E-02	4.60E-02	95% KM (t) UCL
BE-7	pCi/g	1	1	-	-	-	-	6.34E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	9-10	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	318	14	7.43E-01-1.43E+01	IA3-19	1-2	2.37E+00	3.10E-01-2.94E+00	1.66E+00	2.46E+00	95% KM (BCA) UCL
RA-228	pCi/g	318	0	4.01E-01-3.34E+00	IA2-8	6-7	9.94E-01	4.96E-02-4.69E-01	1.32E+00	1.03E+00	Use 95% Student's-t UCL
TH-228	pCi/g	313	0	3.25E-01-3.04E+00	IA2-8	6-7	8.63E-01	5.42E-03-1.69E-01	1.14E+00	8.96E-01	Use 95% Student's-t UCL
TH-230	pCi/g	318	0	3.52E-01-5.75E+00	IA3-FL-1	12-13	1.08E+00	6.19E-03-1.04E-01	1.26E+00	1.13E+00	Use 95% Student's-t UCL
TH-232	pCi/g	318	0	2.79E-01-3.15E+00	IA2-8	6-7	8.37E-01	6.17E-03-1.13E-01	1.02E+00	8.71E-01	Use 95% Student's-t UCL
U-234	pCi/g	318	44	3.06E-02-1.24E+01	IA3-19	1-2	1.52E+00	1.68E-02-2.81E+00	1.50E+00	1.53E+00	95% KM (BCA) UCL
U-235	pCi/g	318	317	9.26E-01-9.26E-01	IA1-20	1.1-1.6	9.26E-01	7.69E-02-8.43E-01	1.69E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	318	60	3.67E-01-1.24E+01	IA3-19	1-2	1.58E+00	1.44E-01-2.81E+00	1.62E+00	1.56E+00	95% KM (BCA) UCL
EU3 (100-ft buffer ALL) - All Depths-Sediment Only											
RA-226	pCi/g	6	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.19E+00	1.40E-01-7.87E-01	1.66E+00	1.46E+00	Use 95% Student's-t UCL
RA-228	pCi/g	6	0	9.67E-01-1.82E+00	SW/SD-08	0-0	1.34E+00	2.79E-01-1.57E+00	1.32E+00	1.58E+00	Use 95% Student's-t UCL
TH-228	pCi/g	6	0	5.88E-01-1.02E+00	SW/SD-10	0-0	8.19E-01	9.54E-02-1.28E-01	1.14E+00	9.66E-01	Use 95% Student's-t UCL
TH-230	pCi/g	6	0	5.14E-01-1.14E+00	SW/SD-07	0-0	8.71E-01	5.67E-02-1.30E-01	1.26E+00	1.06E+00	Use 95% Student's-t UCL
TH-232	pCi/g	6	0	4.85E-01-8.63E-01	SW/SD-08	0-0	6.90E-01	4.32E-02-1.11E-01	1.02E+00	8.03E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	6	0	8.34E-01-4.75E+00	SW/SD-08	0-0	1.93E+00	6.56E-02-1.35E-01	1.50E+00	3.73E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	6	2	1.20E-01-3.76E-01	SW/SD-08	0-0	2.23E-01	4.05E-02-1.17E-01	1.69E-01	2.80E-01	95% KM (t) UCL
U-238	pCi/g	6	0	9.55E-01-4.43E+00	SW/SD-08	0-0	1.88E+00	3.27E-02-9.43E-02	1.62E+00	3.48E+00	Use 95% Approximate Gamma UCL
EU3 (100-ft buffer FILL ONLY) - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	103	102	5.30E-02-5.30E-02	IA3-FL-3	4-5	5.30E-02	3.55E-02-2.66E-01	8.12E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	109	5	6.70E-01-1.43E+01	IA3-19	1-2	3.15E+00	1.40E-01-2.94E+00	1.66E+00	3.39E+00	95% KM (BCA) UCL
RA-228	pCi/g	109	0	4.01E-01-3.34E+00	IA2-8	6-7	1.20E+00	6.17E-02-1.57E+00	1.32E+00	1.28E+00	Use 95% Student's-t UCL
TH-228	pCi/g	108	0	4.39E-01-3.04E+00	IA2-8	6-7	1.03E+00	5.42E-03-1.68E-01	1.14E+00	1.11E+00	Use 95% Student's-t UCL
TH-230	pCi/g	109	0	5.14E-01-4.14E+00	IA1-20	1.1-1.6	1.34E+00	7.66E-03-1.30E-01	1.26E+00	1.46E+00	Use 95% Student's-t UCL
TH-232	pCi/g	109	0	3.43E-01-3.15E+00	IA2-8	6-7	9.77E-01	1.10E-02-1.11E-01	1.02E+00	1.06E+00	Use 95% Student's-t UCL
TOTAL U	ug/g	6	0	2.06E+00-9.70E+00	SW/SD-08	0-0	4.32E+00	4.65E-02-4.98E-02	-	7.48E+00	Use 95% Approximate Gamma UCL
U-234	pCi/g	109	18	6.02E-02-1.24E+01	IA3-19	1-2	2.18E+00	2.20E-02-2.81E+00	1.50E+00	2.27E+00	95% KM (BCA) UCL
U-235	pCi/g	109	104	1.20E-01-9.26E-01	IA1-20	1.1-1.6	3.64E-01	4.05E-02-8.43E-01	1.69E-01	1.67E-01	95% KM (t) UCL
U-238	pCi/g	109	25	5.22E-01-1.24E+01	IA3-19	1-2	2.28E+00	3.27E-02-2.81E+00	1.62E+00	2.28E+00	95% KM (BCA) UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU3 (100-ft buffer FILL ONLY) - All Depths-Soils Only											
AM-241	pCi/g	103	102	5.30E-02-5.30E-02	IA3-FL-3	4-5	5.30E-02	3.55E-02-2.66E-01	8.12E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	103	5	8.56E-01-1.43E+01	IA3-19	1-2	3.27E+00	3.10E-01-2.94E+00	1.66E+00	3.59E+00	95% KM (BCA) UCL
RA-228	pCi/g	103	0	4.01E-01-3.34E+00	IA2-8	6-7	1.19E+00	6.17E-02-4.69E-01	1.32E+00	1.28E+00	Use 95% Student's-t UCL
TH-228	pCi/g	102	0	4.39E-01-3.04E+00	IA2-8	6-7	1.04E+00	5.42E-03-1.68E-01	1.14E+00	1.13E+00	Use 95% Student's-t UCL
TH-230	pCi/g	103	0	5.59E-01-4.14E+00	IA1-20	1.1-1.6	1.37E+00	7.66E-03-1.04E-01	1.26E+00	1.49E+00	Use 95% Student's-t UCL
TH-232	pCi/g	103	0	3.43E-01-3.15E+00	IA2-8	6-7	9.94E-01	1.10E-02-9.16E-02	1.02E+00	1.08E+00	Use 95% Student's-t UCL
U-234	pCi/g	103	18	6.02E-02-1.24E+01	IA3-19	1-2	2.19E+00	2.20E-02-2.81E+00	1.50E+00	2.32E+00	95% KM (BCA) UCL
U-235	pCi/g	103	102	9.26E-01-9.26E-01	IA1-20	1.1-1.6	9.26E-01	7.69E-02-8.43E-01	1.69E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	103	25	5.22E-01-1.24E+01	IA3-19	1-2	2.31E+00	3.32E-01-2.81E+00	1.62E+00	2.29E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-6") - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	1	1	-	-	-	-	1.59E-01-1.59E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	4	1	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-2.18E+00	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	4	0	7.13E-01-1.59E+00	SW/SD-05	0-0	1.02E+00	3.18E-01-1.08E+00	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	4	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.17E-01	5.55E-02-1.80E-01	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	4	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.14E+00	3.82E-02-1.60E-01	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	4	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.72E-01	2.55E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	4	1	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.75E+00	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	4	1	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-4.50E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	4	1	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.75E+00	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
EU4 (hot spot) - Surface Soils (0-6") - Original Depths-Soils Only											
AM-241	pCi/g	1	1	-	-	-	-	1.59E-01-1.59E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	1	1	-	-	-	-	2.18E+00-2.18E+00	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	1	0	7.13E-01-7.13E-01	IA1-B14	0-0.5	7.13E-01	3.18E-01-3.18E-01	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	1	0	8.63E-01-8.63E-01	IA1-B14	0-0.5	8.63E-01	5.55E-02-5.55E-02	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	1	0	7.60E-01-7.60E-01	IA1-B14	0-0.5	7.60E-01	3.82E-02-3.82E-02	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	1	0	6.78E-01-6.78E-01	IA1-B14	0-0.5	6.78E-01	2.55E-02-2.55E-02	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	1	1	-	-	-	-	1.75E+00-1.75E+00	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	1	1	-	-	-	-	4.50E-01-4.50E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	1	1	-	-	-	-	1.75E+00-1.75E+00	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
EU4 (hot spot) - Surface Soils (0-6") - Original Depths-Sediment Only											
RA-226	pCi/g	3	0	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-5.10E-01	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	3	0	8.70E-01-1.59E+00	SW/SD-05	0-0	1.12E+00	4.14E-01-1.08E+00	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	3	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.01E-01	1.26E-01-1.80E-01	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	3	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.27E+00	9.01E-02-1.60E-01	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	3	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.69E-01	6.90E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU4 (hot spot) - Surface Soils (0-6") - Original Depths-Sediment Only											
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	3	0	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.57E-01	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	3	0	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-1.14E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	3	0	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.40E-01	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
EU4 (hot spot) - Surface Soils (0-6") - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	35	35	-	-	-	-	6.29E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	38	9	1.14E+00-4.33E+01	IA1-3	0-0.5	4.86E+00	1.79E-01-2.89E+00	1.40E+00	6.08E+00	95% KM (BCA) UCL
RA-228	pCi/g	38	2	4.14E-01-1.86E+00	IA1-20	0-0.5	9.45E-01	1.21E-01-1.08E+00	1.53E+00	1.02E+00	95% KM (t) UCL
TH-228	pCi/g	38	0	4.10E-01-1.54E+00	IA1-20	0-0.5	8.12E-01	3.55E-02-1.80E-01	1.06E+00	8.80E-01	Use 95% Student's-t UCL
TH-230	pCi/g	38	0	4.85E-01-4.14E+00	IA1-20	0-0.5	1.41E+00	5.53E-03-1.60E-01	1.12E+00	1.62E+00	Use 95% Student's-t UCL
TH-232	pCi/g	38	0	3.04E-01-1.81E+00	IA1-B17	0-0.5	7.58E-01	1.04E-02-1.24E-01	1.02E+00	8.38E-01	Use 95% Approximate Gamma UCL
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	38	11	4.06E-01-3.65E+01	IA1-3	0-0.5	5.03E+00	1.07E-01-2.63E+00	1.33E+00	6.13E+00	95% KM (BCA) UCL
U-235	pCi/g	38	33	6.15E-01-2.92E+00	IA1-3	0-0.5	1.39E+00	5.45E-02-8.59E-01	1.89E-01	8.38E-01	95% KM (t) UCL
U-238	pCi/g	38	13	1.06E+00-3.65E+01	IA1-3	0-0.5	5.36E+00	8.57E-02-2.63E+00	1.50E+00	5.60E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-6") - Top Void Removed-Soils Only											
AM-241	pCi/g	35	35	-	-	-	-	6.29E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	35	9	1.14E+00-4.33E+01	IA1-3	0-0.5	5.26E+00	1.06E+00-2.89E+00	1.40E+00	6.77E+00	95% KM (BCA) UCL
RA-228	pCi/g	35	2	4.14E-01-1.86E+00	IA1-20	0-0.5	9.29E-01	1.21E-01-4.48E-01	1.53E+00	1.01E+00	95% KM (t) UCL
TH-228	pCi/g	35	0	4.10E-01-1.54E+00	IA1-20	0-0.5	8.13E-01	3.55E-02-9.83E-02	1.06E+00	8.86E-01	Use 95% Student's-t UCL
TH-230	pCi/g	35	0	5.66E-01-4.14E+00	IA1-20	0-0.5	1.42E+00	5.53E-03-9.67E-02	1.12E+00	1.65E+00	Use 95% Student's-t UCL
TH-232	pCi/g	35	0	3.04E-01-1.81E+00	IA1-B17	0-0.5	7.65E-01	1.04E-02-5.04E-02	1.02E+00	8.49E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	35	11	4.06E-01-3.65E+01	IA1-3	0-0.5	4.29E+00	8.78E-01-2.63E+00	1.33E+00	5.38E+00	95% KM (BCA) UCL
U-235	pCi/g	35	33	9.26E-01-2.92E+00	IA1-3	0-0.5	1.93E+00	2.90E-01-8.59E-01	1.89E-01	1.12E+00	95% KM (t) UCL
U-238	pCi/g	35	13	1.06E+00-3.65E+01	IA1-3	0-0.5	4.58E+00	8.78E-01-2.63E+00	1.50E+00	5.63E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-6") - Top Void Removed-Sediment Only											
RA-226	pCi/g	3	0	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-5.10E-01	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	3	0	8.70E-01-1.59E+00	SW/SD-05	0-0	1.12E+00	4.14E-01-1.08E+00	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	3	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.01E-01	1.26E-01-1.80E-01	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	3	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.27E+00	9.01E-02-1.60E-01	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	3	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.69E-01	6.90E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	3	0	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.57E-01	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	3	0	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-1.14E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	3	0	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.40E-01	1.50E+00	0.00E+00	ProUCL did not calculate UCL95

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU4 (hot spot) - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	35	35	-	-	-	-	6.29E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	38	9	1.14E+00-4.33E+01	IA1-3	0-0.5	4.86E+00	1.79E-01-2.89E+00	1.40E+00	6.27E+00	95% KM (BCA) UCL
RA-228	pCi/g	38	2	4.14E-01-1.86E+00	IA1-20	0-0.5	9.45E-01	1.21E-01-1.08E+00	1.53E+00	1.02E+00	95% KM (t) UCL
TH-228	pCi/g	38	0	4.10E-01-1.54E+00	IA1-20	0-0.5	8.12E-01	3.55E-02-1.80E-01	1.06E+00	8.80E-01	Use 95% Student's-t UCL
TH-230	pCi/g	38	0	4.85E-01-4.14E+00	IA1-20	0-0.5	1.41E+00	5.53E-03-1.60E-01	1.12E+00	1.62E+00	Use 95% Student's-t UCL
TH-232	pCi/g	38	0	3.04E-01-1.81E+00	IA1-B17	0-0.5	7.58E-01	1.04E-02-1.24E-01	1.02E+00	8.38E-01	Use 95% Approximate Gamma UCL
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	38	11	4.06E-01-3.65E+01	IA1-3	0-0.5	5.03E+00	1.07E-01-2.63E+00	1.33E+00	5.80E+00	95% KM (BCA) UCL
U-235	pCi/g	38	33	6.15E-01-2.92E+00	IA1-3	0-0.5	1.39E+00	5.45E-02-8.59E-01	1.89E-01	8.38E-01	95% KM (t) UCL
U-238	pCi/g	38	13	1.06E+00-3.65E+01	IA1-3	0-0.5	5.36E+00	8.57E-02-2.63E+00	1.50E+00	6.06E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-6") - All Voids Removed-Soils Only											
AM-241	pCi/g	35	35	-	-	-	-	6.29E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	35	9	1.14E+00-4.33E+01	IA1-3	0-0.5	5.26E+00	1.06E+00-2.89E+00	1.40E+00	6.75E+00	95% KM (BCA) UCL
RA-228	pCi/g	35	2	4.14E-01-1.86E+00	IA1-20	0-0.5	9.29E-01	1.21E-01-4.48E-01	1.53E+00	1.01E+00	95% KM (t) UCL
TH-228	pCi/g	35	0	4.10E-01-1.54E+00	IA1-20	0-0.5	8.13E-01	3.55E-02-9.83E-02	1.06E+00	8.86E-01	Use 95% Student's-t UCL
TH-230	pCi/g	35	0	5.66E-01-4.14E+00	IA1-20	0-0.5	1.42E+00	5.53E-03-9.67E-02	1.12E+00	1.65E+00	Use 95% Student's-t UCL
TH-232	pCi/g	35	0	3.04E-01-1.81E+00	IA1-B17	0-0.5	7.65E-01	1.04E-02-5.04E-02	1.02E+00	8.49E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	35	11	4.06E-01-3.65E+01	IA1-3	0-0.5	4.29E+00	8.78E-01-2.63E+00	1.33E+00	5.37E+00	95% KM (BCA) UCL
U-235	pCi/g	35	33	9.26E-01-2.92E+00	IA1-3	0-0.5	1.93E+00	2.90E-01-8.59E-01	1.89E-01	1.12E+00	95% KM (t) UCL
U-238	pCi/g	35	13	1.06E+00-3.65E+01	IA1-3	0-0.5	4.58E+00	8.78E-01-2.63E+00	1.50E+00	5.26E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-6") - All Voids Removed-Sediment Only											
RA-226	pCi/g	3	0	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-5.10E-01	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	3	0	8.70E-01-1.59E+00	SW/SD-05	0-0	1.12E+00	4.14E-01-1.08E+00	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	3	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.01E-01	1.26E-01-1.80E-01	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	3	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.27E+00	9.01E-02-1.60E-01	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	3	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.69E-01	6.90E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	3	0	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.57E-01	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	3	0	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-1.14E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	3	0	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.40E-01	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
EU4 (hot spot) - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	34	34	-	-	-	-	6.29E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	39	11	3.58E-01-4.33E+01	IA1-3	1.2-1.7	4.86E+00	1.79E-01-2.89E+00	1.40E+00	6.15E+00	95% KM (BCA) UCL
RA-228	pCi/g	39	2	4.14E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.09E+00	1.21E-01-1.39E+00	1.53E+00	1.30E+00	95% KM (BCA) UCL
TH-228	pCi/g	39	0	3.97E-01-1.54E+00	IA1-20	1.1-1.6	7.76E-01	3.55E-02-1.82E-01	1.06E+00	8.42E-01	Use 95% Student's-t UCL
TH-230	pCi/g	38	0	4.85E-01-4.14E+00	IA1-20	1.1-1.6	1.37E+00	5.53E-03-1.88E-01	1.12E+00	1.59E+00	Use 95% Student's-t UCL

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU4 (hot spot) - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
TH-232	pCi/g	39	0	3.04E-01-1.81E+00	IA1-B17	1.2-1.7	7.49E-01	9.69E-03-1.24E-01	1.02E+00	8.27E-01	Use 95% Approximate Gamma UCL
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	39	9	4.06E-01-3.65E+01	IA1-3	1.2-1.7	4.68E+00	4.71E-02-2.63E+00	1.33E+00	5.76E+00	95% KM (BCA) UCL
U-235	pCi/g	39	33	1.32E-01-2.92E+00	IA1-3	1.2-1.7	1.18E+00	5.45E-02-8.59E-01	1.89E-01	4.49E-01	95% KM (t) UCL
U-238	pCi/g	39	11	1.08E+00-3.65E+01	IA1-3	1.2-1.7	4.96E+00	4.69E-02-2.63E+00	1.50E+00	5.72E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-2') - Original Depths-Soils Only											
AM-241	pCi/g	34	34	-	-	-	-	6.29E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	36	11	3.58E-01-4.33E+01	IA1-3	1.2-1.7	5.28E+00	2.16E-01-2.89E+00	1.40E+00	6.86E+00	95% KM (BCA) UCL
RA-228	pCi/g	36	2	4.14E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.09E+00	1.21E-01-1.39E+00	1.53E+00	1.64E+00	95% KM (Chebyshev) UCL
TH-228	pCi/g	36	0	3.97E-01-1.54E+00	IA1-20	1.1-1.6	7.74E-01	3.55E-02-1.82E-01	1.06E+00	8.44E-01	Use 95% Student's-t UCL
TH-230	pCi/g	35	0	5.66E-01-4.14E+00	IA1-20	1.1-1.6	1.38E+00	5.53E-03-1.88E-01	1.12E+00	1.61E+00	Use 95% Student's-t UCL
TH-232	pCi/g	36	0	3.04E-01-1.81E+00	IA1-B17	1.2-1.7	7.56E-01	9.69E-03-1.12E-01	1.02E+00	8.37E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	36	9	4.06E-01-3.65E+01	IA1-3	1.2-1.7	3.98E+00	4.71E-02-2.63E+00	1.33E+00	5.29E+00	95% KM (BCA) UCL
U-235	pCi/g	36	33	1.32E-01-2.92E+00	IA1-3	1.2-1.7	1.33E+00	5.81E-02-8.59E-01	1.89E-01	3.94E-01	95% KM (t) UCL
U-238	pCi/g	36	11	1.08E+00-3.65E+01	IA1-3	1.2-1.7	4.22E+00	4.69E-02-2.63E+00	1.50E+00	5.29E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-2') - Original Depths-Sediment Only											
RA-226	pCi/g	3	0	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-5.10E-01	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	3	0	8.70E-01-1.59E+00	SW/SD-05	0-0	1.12E+00	4.14E-01-1.08E+00	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	3	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.01E-01	1.26E-01-1.80E-01	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	3	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.27E+00	9.01E-02-1.60E-01	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	3	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.69E-01	6.90E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	3	0	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.57E-01	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	3	0	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-1.14E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	3	0	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.40E-01	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
EU4 (hot spot) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	49	49	-	-	-	-	5.42E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	54	13	3.58E-01-4.33E+01	IA1-3	0-0.5	4.80E+00	1.79E-01-2.89E+00	1.40E+00	5.63E+00	95% KM (BCA) UCL
RA-228	pCi/g	54	2	4.14E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.06E+00	1.07E-01-1.39E+00	1.53E+00	1.45E+00	95% KM (Chebyshev) UCL
TH-228	pCi/g	54	0	3.97E-01-2.69E+00	IA1-20	0.5-1.5	8.33E-01	3.55E-02-1.82E-01	1.06E+00	9.05E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	53	0	4.85E-01-4.14E+00	IA1-20	0-0.5	1.41E+00	5.53E-03-1.88E-01	1.12E+00	1.59E+00	Use 95% Student's-t UCL
TH-232	pCi/g	54	0	3.04E-01-2.55E+00	IA1-20	0.5-1.5	8.01E-01	9.69E-03-1.24E-01	1.02E+00	8.76E-01	Use 95% Approximate Gamma UCL
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	54	13	4.06E-01-3.65E+01	IA1-3	0-0.5	4.37E+00	4.71E-02-2.63E+00	1.33E+00	4.98E+00	95% KM (BCA) UCL
U-235	pCi/g	54	47	1.32E-01-2.92E+00	IA1-3	0-0.5	1.12E+00	5.45E-02-8.59E-01	1.89E-01	3.71E-01	95% KM (t) UCL
U-238	pCi/g	54	16	7.27E-01-3.65E+01	IA1-3	0-0.5	4.65E+00	4.69E-02-2.63E+00	1.50E+00	4.87E+00	95% KM (BCA) UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU4 (hot spot) - Surface Soils (0-2') - Top Void Removed-Soils Only											
AM-241	pCi/g	49	49	-	-	-	-	5.42E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	51	13	3.58E-01-4.33E+01	IA1-3	0-0.5	5.07E+00	2.16E-01-2.89E+00	1.40E+00	5.77E+00	95% KM (BCA) UCL
RA-228	pCi/g	51	2	4.14E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.05E+00	1.07E-01-1.39E+00	1.53E+00	1.46E+00	95% KM (Chebyshev) UCL
TH-228	pCi/g	51	0	3.97E-01-2.69E+00	IA1-20	0.5-1.5	8.35E-01	3.55E-02-1.82E-01	1.06E+00	9.11E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	50	0	5.66E-01-4.14E+00	IA1-20	0-0.5	1.42E+00	5.53E-03-1.88E-01	1.12E+00	1.61E+00	Use 95% Student's-t UCL
TH-232	pCi/g	51	0	3.04E-01-2.55E+00	IA1-20	0.5-1.5	8.08E-01	9.69E-03-1.12E-01	1.02E+00	8.87E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	51	13	4.06E-01-3.65E+01	IA1-3	0-0.5	3.85E+00	4.71E-02-2.63E+00	1.33E+00	4.61E+00	95% KM (BCA) UCL
U-235	pCi/g	51	47	1.32E-01-2.92E+00	IA1-3	0-0.5	1.18E+00	5.81E-02-8.59E-01	1.89E-01	3.24E-01	95% KM (t) UCL
U-238	pCi/g	51	16	7.27E-01-3.65E+01	IA1-3	0-0.5	4.10E+00	4.69E-02-2.63E+00	1.50E+00	4.54E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-2') - Top Void Removed-Sediment Only											
RA-226	pCi/g	3	0	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-5.10E-01	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	3	0	8.70E-01-1.59E+00	SW/SD-05	0-0	1.12E+00	4.14E-01-1.08E+00	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	3	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.01E-01	1.26E-01-1.80E-01	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	3	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.27E+00	9.01E-02-1.60E-01	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	3	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.69E-01	6.90E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	3	0	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.57E-01	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	3	0	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-1.14E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	3	0	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.40E-01	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
EU4 (hot spot) - Surface Soils (0-2') - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	49	49	-	-	-	-	5.42E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	54	13	3.58E-01-4.33E+01	IA1-3	0-0.5	4.80E+00	1.79E-01-2.89E+00	1.40E+00	5.70E+00	95% KM (BCA) UCL
RA-228	pCi/g	54	2	4.14E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.06E+00	1.07E-01-1.39E+00	1.53E+00	1.45E+00	95% KM (Chebyshev) UCL
TH-228	pCi/g	54	0	3.97E-01-2.69E+00	IA1-20	0.5-1.5	8.33E-01	3.55E-02-1.82E-01	1.06E+00	9.05E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	53	0	4.85E-01-4.14E+00	IA1-20	0-0.5	1.41E+00	5.53E-03-1.88E-01	1.12E+00	1.59E+00	Use 95% Student's-t UCL
TH-232	pCi/g	54	0	3.04E-01-2.55E+00	IA1-20	0.5-1.5	8.01E-01	9.69E-03-1.24E-01	1.02E+00	8.76E-01	Use 95% Approximate Gamma UCL
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	54	13	4.06E-01-3.65E+01	IA1-3	0-0.5	4.37E+00	4.71E-02-2.63E+00	1.33E+00	5.13E+00	95% KM (BCA) UCL
U-235	pCi/g	54	47	1.32E-01-2.92E+00	IA1-3	0-0.5	1.12E+00	5.45E-02-8.59E-01	1.89E-01	3.71E-01	95% KM (t) UCL
U-238	pCi/g	54	16	7.27E-01-3.65E+01	IA1-3	0-0.5	4.65E+00	4.69E-02-2.63E+00	1.50E+00	4.91E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-2') - All Voids Removed-Soils Only											
AM-241	pCi/g	49	49	-	-	-	-	5.42E-02-2.92E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	51	13	3.58E-01-4.33E+01	IA1-3	0-0.5	5.07E+00	2.16E-01-2.89E+00	1.40E+00	5.80E+00	95% KM (BCA) UCL
RA-228	pCi/g	51	2	4.14E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.05E+00	1.07E-01-1.39E+00	1.53E+00	1.46E+00	95% KM (Chebyshev) UCL
TH-228	pCi/g	51	0	3.97E-01-2.69E+00	IA1-20	0.5-1.5	8.35E-01	3.55E-02-1.82E-01	1.06E+00	9.11E-01	Use 95% Approximate Gamma UCL
TH-230	pCi/g	50	0	5.66E-01-4.14E+00	IA1-20	0-0.5	1.42E+00	5.53E-03-1.88E-01	1.12E+00	1.61E+00	Use 95% Student's-t UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU4 (hot spot) - Surface Soils (0-2') - All Voids Removed-Soils Only											
TH-232	pCi/g	51	0	3.04E-01-2.55E+00	IA1-20	0.5-1.5	8.08E-01	9.69E-03-1.12E-01	1.02E+00	8.87E-01	Use 95% Approximate Gamma UCL
U-234	pCi/g	51	13	4.06E-01-3.65E+01	IA1-3	0-0.5	3.85E+00	4.71E-02-2.63E+00	1.33E+00	4.60E+00	95% KM (BCA) UCL
U-235	pCi/g	51	47	1.32E-01-2.92E+00	IA1-3	0-0.5	1.18E+00	5.81E-02-8.59E-01	1.89E-01	3.24E-01	95% KM (t) UCL
U-238	pCi/g	51	16	7.27E-01-3.65E+01	IA1-3	0-0.5	4.10E+00	4.69E-02-2.63E+00	1.50E+00	4.64E+00	95% KM (BCA) UCL
EU4 (hot spot) - Surface Soils (0-2') - All Voids Removed-Sediment Only											
RA-226	pCi/g	3	0	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-5.10E-01	1.40E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	3	0	8.70E-01-1.59E+00	SW/SD-05	0-0	1.12E+00	4.14E-01-1.08E+00	1.53E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	3	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.01E-01	1.26E-01-1.80E-01	1.06E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	3	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.27E+00	9.01E-02-1.60E-01	1.12E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	3	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.69E-01	6.90E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	3	0	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.57E-01	1.33E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	3	0	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-1.14E-01	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	3	0	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.40E-01	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
EU4 (hot spot) - All Depths - Combined Soil and Sediment											
AM-241	pCi/g	200	199	5.53E-02-5.53E-02	IA5-18	4-5	5.53E-02	4.25E-02-2.12E+00	8.12E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	205	24	3.58E-01-3.49E+03	IA1-5	3-4	5.55E+01	1.79E-01-1.68E+01	1.66E+00	1.64E+02	97.5% KM (Chebyshev) UCL
RA-228	pCi/g	205	6	3.13E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.44E+00	8.69E-02-2.27E+00	1.32E+00	1.51E+00	95% KM (BCA) UCL
TH-228	pCi/g	205	0	3.20E-01-3.96E+00	IA1-B12	19-20	1.27E+00	3.55E-02-1.51E+00	1.14E+00	1.52E+00	Use 95% Chebyshev (Mean, Sd) UCL
TH-230	pCi/g	200	0	4.85E-01-1.64E+03	IA1-5	3-4	1.99E+01	5.53E-03-1.01E+00	1.26E+00	6.00E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	205	0	3.04E-01-7.08E+00	IA1-B6	15-16	1.26E+00	9.69E-03-6.73E-01	1.02E+00	1.55E+00	Use 95% Chebyshev (Mean, Sd) UCL
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	205	34	4.06E-01-2.05E+03	IA1-5	3-4	4.37E+01	4.71E-02-1.96E+01	1.50E+00	1.08E+02	97.5% KM (Chebyshev) UCL
U-235	pCi/g	205	150	1.32E-01-1.59E+02	IA1-5	3-4	1.02E+01	5.45E-02-5.11E+00	1.69E-01	5.02E+00	95% KM (BCA) UCL
U-238	pCi/g	205	41	7.27E-01-2.05E+03	IA1-5	3-4	4.55E+01	4.69E-02-1.96E+01	1.62E+00	1.08E+02	97.5% KM (Chebyshev) UCL
EU4 (hot spot) - All Depths-Soils Only											
AM-241	pCi/g	200	199	5.53E-02-5.53E-02	IA5-18	4-5	5.53E-02	4.25E-02-2.12E+00	8.12E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	202	24	3.58E-01-3.49E+03	IA1-5	3-4	5.64E+01	2.16E-01-1.68E+01	1.66E+00	1.66E+02	97.5% KM (Chebyshev) UCL
RA-228	pCi/g	202	6	3.13E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.44E+00	8.69E-02-2.27E+00	1.32E+00	1.52E+00	95% KM (BCA) UCL
TH-228	pCi/g	202	0	3.20E-01-3.96E+00	IA1-B12	19-20	1.27E+00	3.55E-02-1.51E+00	1.14E+00	1.53E+00	Use 95% Chebyshev (Mean, Sd) UCL
TH-230	pCi/g	197	0	5.20E-01-1.64E+03	IA1-5	3-4	2.02E+01	5.53E-03-1.01E+00	1.26E+00	6.08E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	202	0	3.04E-01-7.08E+00	IA1-B6	15-16	1.26E+00	9.69E-03-6.73E-01	1.02E+00	1.57E+00	Use 95% Chebyshev (Mean, Sd) UCL
U-234	pCi/g	202	34	4.06E-01-2.05E+03	IA1-5	3-4	4.43E+01	4.71E-02-1.96E+01	1.50E+00	1.10E+02	97.5% KM (Chebyshev) UCL
U-235	pCi/g	202	150	1.32E-01-1.59E+02	IA1-5	3-4	1.07E+01	5.81E-02-5.11E+00	1.69E-01	5.10E+00	95% KM (BCA) UCL
U-238	pCi/g	202	41	7.27E-01-2.05E+03	IA1-5	3-4	4.62E+01	4.69E-02-1.96E+01	1.62E+00	1.10E+02	97.5% KM (Chebyshev) UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU4 (hot spot) - All Depths-Sediment Only											
RA-226	pCi/g	3	0	1.27E+00-1.49E+00	SW/SD-02	0-0	1.37E+00	1.79E-01-5.10E-01	1.66E+00	0.00E+00	ProUCL did not calculate UCL95
RA-228	pCi/g	3	0	8.70E-01-1.59E+00	SW/SD-05	0-0	1.12E+00	4.14E-01-1.08E+00	1.32E+00	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/g	3	0	6.43E-01-1.05E+00	SW/SD-01	0-0	8.01E-01	1.26E-01-1.80E-01	1.14E+00	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/g	3	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.27E+00	9.01E-02-1.60E-01	1.26E+00	0.00E+00	ProUCL did not calculate UCL95
TH-232	pCi/g	3	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.69E-01	6.90E-02-1.24E-01	1.02E+00	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/g	3	0	1.33E+01-4.44E+01	SW/SD-05	0-0	2.44E+01	4.84E-02-4.96E-02	-	0.00E+00	ProUCL did not calculate UCL95
U-234	pCi/g	3	0	7.31E+00-1.53E+01	SW/SD-05	0-0	1.10E+01	1.07E-01-1.57E-01	1.50E+00	0.00E+00	ProUCL did not calculate UCL95
U-235	pCi/g	3	0	6.15E-01-1.39E+00	SW/SD-05	0-0	1.04E+00	5.45E-02-1.14E-01	1.69E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	3	0	7.92E+00-1.41E+01	SW/SD-05	0-0	1.11E+01	8.57E-02-1.40E-01	1.62E+00	0.00E+00	ProUCL did not calculate UCL95
EU5 (Entire Landfill) - Surface Soils (0-6") - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	34	33	5.79E-02-5.79E-02	IA3-5	0-0.5	5.79E-02	3.62E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	44	1	6.70E-01-7.01E+00	IA2-DOE-B3	0-0.5	2.21E+00	1.40E-01-4.74E+00	1.40E+00	3.11E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	44	0	4.62E-01-1.85E+00	IA3-6	0-0.5	9.63E-01	8.19E-02-1.57E+00	1.53E+00	1.05E+00	Use 95% Approximate Gamma UCL
TH-228	pCi/g	41	0	4.13E-01-1.47E+00	IA3-18	0-0.5	8.10E-01	5.33E-03-1.80E-01	1.06E+00	8.67E-01	Use 95% Student's-t UCL
TH-230	pCi/g	44	0	4.85E-01-2.24E+00	SW/SD-01	0-0	1.06E+00	1.24E-02-1.60E-01	1.12E+00	1.16E+00	Use 95% Student's-t UCL
TH-232	pCi/g	44	0	4.41E-01-1.84E+00	IA3-18	0-0.5	7.77E-01	1.24E-02-1.24E-01	1.02E+00	8.41E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	44	3	5.27E-01-1.53E+01	SW/SD-05	0-0	2.21E+00	6.56E-02-4.18E+00	1.33E+00	3.96E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	44	36	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E+00	1.89E-01	2.45E-01	95% KM (t) UCL
U-238	pCi/g	44	5	5.27E-01-1.41E+01	SW/SD-05	0-0	2.27E+00	3.27E-02-4.18E+00	1.50E+00	3.93E+00	95% KM (Chebyshev) UCL
EU5 (Entire Landfill) - Surface Soils (0-6") - Original Depths-Soils Only											
AM-241	pCi/g	34	33	5.79E-02-5.79E-02	IA3-5	0-0.5	5.79E-02	3.62E-02-3.53E-01	8.00E-02	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	34	1	9.73E-01-7.01E+00	IA2-DOE-B3	0-0.5	2.51E+00	4.03E-01-4.74E+00	1.40E+00	3.57E+00	95% KM (Chebyshev) UCL
RA-228	pCi/g	34	0	4.62E-01-1.85E+00	IA3-6	0-0.5	8.72E-01	8.19E-02-4.45E-01	1.53E+00	9.56E-01	Use 95% Approximate Gamma UCL
TH-228	pCi/g	31	0	4.13E-01-1.47E+00	IA3-18	0-0.5	8.09E-01	5.33E-03-9.49E-02	1.06E+00	8.80E-01	Use 95% Student's-t UCL
TH-230	pCi/g	34	0	6.71E-01-2.08E+00	IA3-2	0-0.5	1.09E+00	1.24E-02-6.87E-02	1.12E+00	1.18E+00	Use 95% Student's-t UCL
TH-232	pCi/g	34	0	4.41E-01-1.84E+00	IA3-18	0-0.5	8.00E-01	1.24E-02-8.45E-02	1.02E+00	8.77E-01	Use 95% Student's-t UCL
U-234	pCi/g	34	3	5.27E-01-5.87E+00	IA3-6	0-0.5	1.47E+00	3.39E-01-4.18E+00	1.33E+00	2.17E+00	95% KM (Chebyshev) UCL
U-235	pCi/g	34	34	-	-	-	-	1.15E-01-1.17E+00	1.89E-01	0.00E+00	ProUCL did not calculate UCL95
U-238	pCi/g	34	5	5.27E-01-5.87E+00	IA3-6	0-0.5	1.49E+00	3.39E-01-4.18E+00	1.50E+00	2.18E+00	95% KM (Chebyshev) UCL
EU5 (Entire Landfill) - Surface Soils (0-6") - Original Depths-Sediment Only											
RA-226	pCi/g	10	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.24E+00	1.40E-01-7.87E-01	1.40E+00	1.39E+00	Use 95% Student's-t UCL
RA-228	pCi/g	10	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.27E+00	2.79E-01-1.57E+00	1.53E+00	1.45E+00	Use 95% Student's-t UCL
TH-228	pCi/g	10	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.14E-01	8.25E-02-1.80E-01	1.06E+00	9.12E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	4.85E-01-2.24E+00	SW/SD-01	0-0	9.82E-01	5.67E-02-1.60E-01	1.12E+00	1.30E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.99E-01	4.32E-02-1.24E-01	1.02E+00	8.05E-01	Use 95% Student's-t UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill) - Surface Soils (0-6") - Original Depths-Sediment Only											
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	10	0	5.74E-01-1.53E+01	SW/SD-05	0-0	4.52E+00	6.56E-02-1.57E-01	1.33E+00	9.26E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	2	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E-01	1.89E-01	7.00E-01	95% KM (t) UCL
U-238	pCi/g	10	0	6.31E-01-1.41E+01	SW/SD-05	0-0	4.52E+00	3.27E-02-1.40E-01	1.50E+00	9.18E+00	Use 95% Approximate Gamma UCL
EU5 (Entire Landfill) - Surface Soils (0-6") - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	168	164	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	5.18E-02	95% KM (t) UCL
RA-226	pCi/g	178	12	6.70E-01-4.33E+01	IA1-3	0-0.5	2.72E+00	1.40E-01-4.74E+00	1.40E+00	3.13E+00	95% KM (BCA) UCL
RA-228	pCi/g	178	2	3.58E-01-3.29E+00	IA5-15	0-0.5	9.20E-01	6.20E-02-1.57E+00	1.53E+00	9.58E-01	95% KM (BCA) UCL
TH-228	pCi/g	174	0	3.14E-01-2.99E+00	IA5-15	0-0.5	8.15E-01	5.33E-03-1.80E-01	1.06E+00	8.50E-01	Use 95% Student's-t UCL
TH-230	pCi/g	177	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.11E+00	5.53E-03-1.60E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL
TH-232	pCi/g	178	0	2.72E-01-3.42E+00	IA5-15	0-0.5	7.78E-01	8.93E-03-1.24E-01	1.02E+00	8.20E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	178	18	5.71E-02-3.65E+01	IA1-3	0-0.5	2.10E+00	1.84E-02-4.18E+00	1.33E+00	2.45E+00	95% KM (BCA) UCL
U-235	pCi/g	178	168	7.41E-02-2.92E+00	IA1-3	0-0.5	7.93E-01	4.05E-02-1.17E+00	1.89E-01	1.64E-01	95% KM (t) UCL
U-238	pCi/g	178	23	4.68E-01-3.65E+01	IA1-3	0-0.5	2.16E+00	3.27E-02-4.18E+00	1.50E+00	2.47E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-6") - Top Void Removed-Soils Only											
AM-241	pCi/g	168	164	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	5.18E-02	95% KM (t) UCL
RA-226	pCi/g	168	12	8.04E-01-4.33E+01	IA1-3	0-0.5	2.81E+00	4.03E-01-4.74E+00	1.40E+00	3.32E+00	95% KM (BCA) UCL
RA-228	pCi/g	168	2	3.58E-01-3.29E+00	IA5-15	0-0.5	8.99E-01	6.20E-02-5.73E-01	1.53E+00	9.42E-01	95% KM (BCA) UCL
TH-228	pCi/g	164	0	3.14E-01-2.99E+00	IA5-15	0-0.5	8.15E-01	5.33E-03-1.68E-01	1.06E+00	8.52E-01	Use 95% Student's-t UCL
TH-230	pCi/g	167	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.12E+00	5.53E-03-9.67E-02	1.12E+00	1.19E+00	Use 95% Student's-t UCL
TH-232	pCi/g	168	0	2.72E-01-3.42E+00	IA5-15	0-0.5	7.83E-01	8.93E-03-8.45E-02	1.02E+00	8.27E-01	Use 95% Student's-t UCL
U-234	pCi/g	168	18	5.71E-02-3.65E+01	IA1-3	0-0.5	1.94E+00	1.84E-02-4.18E+00	1.33E+00	2.27E+00	95% KM (BCA) UCL
U-235	pCi/g	168	166	9.26E-01-2.92E+00	IA1-3	0-0.5	1.93E+00	1.12E-01-1.17E+00	1.89E-01	9.66E-01	95% KM (t) UCL
U-238	pCi/g	168	23	4.68E-01-3.65E+01	IA1-3	0-0.5	1.99E+00	3.39E-01-4.18E+00	1.50E+00	2.35E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-6") - Top Void Removed-Sediment Only											
RA-226	pCi/g	10	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.24E+00	1.40E-01-7.87E-01	1.40E+00	1.39E+00	Use 95% Student's-t UCL
RA-228	pCi/g	10	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.27E+00	2.79E-01-1.57E+00	1.53E+00	1.45E+00	Use 95% Student's-t UCL
TH-228	pCi/g	10	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.14E-01	8.25E-02-1.80E-01	1.06E+00	9.12E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	4.85E-01-2.24E+00	SW/SD-01	0-0	9.82E-01	5.67E-02-1.60E-01	1.12E+00	1.30E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.99E-01	4.32E-02-1.24E-01	1.02E+00	8.05E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	10	0	5.74E-01-1.53E+01	SW/SD-05	0-0	4.52E+00	6.56E-02-1.57E-01	1.33E+00	9.26E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	2	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E-01	1.89E-01	7.00E-01	95% KM (t) UCL
U-238	pCi/g	10	0	6.31E-01-1.41E+01	SW/SD-05	0-0	4.52E+00	3.27E-02-1.40E-01	1.50E+00	9.18E+00	Use 95% Approximate Gamma UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill) - Surface Soils (0-6") - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	168	164	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	5.18E-02	95% KM (t) UCL
RA-226	pCi/g	178	12	6.70E-01-4.33E+01	IA1-3	0-0.5	2.72E+00	1.40E-01-4.74E+00	1.40E+00	3.07E+00	95% KM (BCA) UCL
RA-228	pCi/g	178	2	3.58E-01-3.29E+00	IA5-15	0-0.5	9.20E-01	6.20E-02-1.57E+00	1.53E+00	9.62E-01	95% KM (BCA) UCL
TH-228	pCi/g	174	0	3.14E-01-2.99E+00	IA5-15	0-0.5	8.15E-01	5.33E-03-1.80E-01	1.06E+00	8.50E-01	Use 95% Student's-t UCL
TH-230	pCi/g	177	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.11E+00	5.53E-03-1.60E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL
TH-232	pCi/g	178	0	2.72E-01-3.42E+00	IA5-15	0-0.5	7.78E-01	8.93E-03-1.24E-01	1.02E+00	8.20E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	178	18	5.71E-02-3.65E+01	IA1-3	0-0.5	2.10E+00	1.84E-02-4.18E+00	1.33E+00	2.45E+00	95% KM (BCA) UCL
U-235	pCi/g	178	168	7.41E-02-2.92E+00	IA1-3	0-0.5	7.93E-01	4.05E-02-1.17E+00	1.89E-01	1.64E-01	95% KM (t) UCL
U-238	pCi/g	178	23	4.68E-01-3.65E+01	IA1-3	0-0.5	2.16E+00	3.27E-02-4.18E+00	1.50E+00	2.55E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-6") - All Voids Removed-Soils Only											
AM-241	pCi/g	168	164	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	5.18E-02	95% KM (t) UCL
RA-226	pCi/g	168	12	8.04E-01-4.33E+01	IA1-3	0-0.5	2.81E+00	4.03E-01-4.74E+00	1.40E+00	3.24E+00	95% KM (BCA) UCL
RA-228	pCi/g	168	2	3.58E-01-3.29E+00	IA5-15	0-0.5	8.99E-01	6.20E-02-5.73E-01	1.53E+00	9.39E-01	95% KM (BCA) UCL
TH-228	pCi/g	164	0	3.14E-01-2.99E+00	IA5-15	0-0.5	8.15E-01	5.33E-03-1.68E-01	1.06E+00	8.52E-01	Use 95% Student's-t UCL
TH-230	pCi/g	167	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.12E+00	5.53E-03-9.67E-02	1.12E+00	1.19E+00	Use 95% Student's-t UCL
TH-232	pCi/g	168	0	2.72E-01-3.42E+00	IA5-15	0-0.5	7.83E-01	8.93E-03-8.45E-02	1.02E+00	8.27E-01	Use 95% Student's-t UCL
U-234	pCi/g	168	18	5.71E-02-3.65E+01	IA1-3	0-0.5	1.94E+00	1.84E-02-4.18E+00	1.33E+00	2.26E+00	95% KM (BCA) UCL
U-235	pCi/g	168	166	9.26E-01-2.92E+00	IA1-3	0-0.5	1.93E+00	1.12E-01-1.17E+00	1.89E-01	9.66E-01	95% KM (t) UCL
U-238	pCi/g	168	23	4.68E-01-3.65E+01	IA1-3	0-0.5	1.99E+00	3.39E-01-4.18E+00	1.50E+00	2.29E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-6") - All Voids Removed-Sediment Only											
RA-226	pCi/g	10	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.24E+00	1.40E-01-7.87E-01	1.40E+00	1.39E+00	Use 95% Student's-t UCL
RA-228	pCi/g	10	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.27E+00	2.79E-01-1.57E+00	1.53E+00	1.45E+00	Use 95% Student's-t UCL
TH-228	pCi/g	10	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.14E-01	8.25E-02-1.80E-01	1.06E+00	9.12E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	4.85E-01-2.24E+00	SW/SD-01	0-0	9.82E-01	5.67E-02-1.60E-01	1.12E+00	1.30E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.99E-01	4.32E-02-1.24E-01	1.02E+00	8.05E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	10	0	5.74E-01-1.53E+01	SW/SD-05	0-0	4.52E+00	6.56E-02-1.57E-01	1.33E+00	9.26E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	2	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E-01	1.89E-01	7.00E-01	95% KM (t) UCL
U-238	pCi/g	10	0	6.31E-01-1.41E+01	SW/SD-05	0-0	4.52E+00	3.27E-02-1.40E-01	1.50E+00	9.18E+00	Use 95% Approximate Gamma UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
AM-241	pCi/g	182	178	4.54E-02-3.53E-01	IA6-19	1.1-1.6	1.32E-01	3.00E-02-3.53E-01	8.00E-02	5.13E-02	95% KM (t) UCL
RA-226	pCi/g	196	17	3.58E-01-4.33E+01	IA1-3	1.2-1.7	2.74E+00	1.40E-01-4.74E+00	1.40E+00	3.03E+00	95% KM (BCA) UCL
RA-228	pCi/g	196	4	3.58E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	9.74E-01	6.20E-02-1.57E+00	1.53E+00	1.03E+00	95% KM (BCA) UCL
TH-228	pCi/g	190	0	3.14E-01-2.99E+00	IA5-15	0.5-1	8.21E-01	5.33E-03-1.82E-01	1.06E+00	8.58E-01	Use 95% Student's-t UCL
TH-230	pCi/g	194	0	3.41E-01-4.14E+00	IA1-20	1.1-1.6	1.12E+00	5.53E-03-1.88E-01	1.12E+00	1.19E+00	Use 95% Student's-t UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill) - Surface Soils (0-2') - Original Depths - Combined Soil and Sediment											
TH-232	pCi/g	196	0	3.04E-01-3.42E+00	IA5-15	0.5-1	7.89E-01	8.93E-03-1.24E-01	1.02E+00	8.30E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	196	20	5.71E-02-3.65E+01	IA1-3	1.2-1.7	2.20E+00	1.52E-02-4.18E+00	1.33E+00	2.48E+00	95% KM (BCA) UCL
U-235	pCi/g	196	183	7.41E-02-2.92E+00	IA1-3	1.2-1.7	7.22E-01	4.05E-02-1.17E+00	1.89E-01	1.69E-01	95% KM (t) UCL
U-238	pCi/g	196	26	4.68E-01-3.65E+01	IA1-3	1.2-1.7	2.26E+00	3.27E-02-4.18E+00	1.50E+00	2.49E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - Original Depths-Soils Only											
AM-241	pCi/g	182	178	4.54E-02-3.53E-01	IA6-19	1.1-1.6	1.32E-01	3.00E-02-3.53E-01	8.00E-02	5.13E-02	95% KM (t) UCL
RA-226	pCi/g	186	17	3.58E-01-4.33E+01	IA1-3	1.2-1.7	2.83E+00	2.16E-01-4.74E+00	1.40E+00	3.19E+00	95% KM (BCA) UCL
RA-228	pCi/g	186	4	3.58E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	9.57E-01	6.20E-02-1.44E+00	1.53E+00	1.01E+00	95% KM (BCA) UCL
TH-228	pCi/g	180	0	3.14E-01-2.99E+00	IA5-15	0.5-1	8.22E-01	5.33E-03-1.82E-01	1.06E+00	8.60E-01	Use 95% Student's-t UCL
TH-230	pCi/g	184	0	3.41E-01-4.14E+00	IA1-20	1.1-1.6	1.13E+00	5.53E-03-1.88E-01	1.12E+00	1.20E+00	Use 95% Student's-t UCL
TH-232	pCi/g	186	0	3.04E-01-3.42E+00	IA5-15	0.5-1	7.94E-01	8.93E-03-1.12E-01	1.02E+00	8.37E-01	Use 95% Student's-t UCL
U-234	pCi/g	186	20	5.71E-02-3.65E+01	IA1-3	1.2-1.7	2.06E+00	1.52E-02-4.18E+00	1.33E+00	2.35E+00	95% KM (BCA) UCL
U-235	pCi/g	186	181	1.32E-01-2.92E+00	IA1-3	1.2-1.7	1.06E+00	5.81E-02-1.17E+00	1.89E-01	1.88E-01	95% KM (t) UCL
U-238	pCi/g	186	26	4.68E-01-3.65E+01	IA1-3	1.2-1.7	2.12E+00	4.69E-02-4.18E+00	1.50E+00	2.37E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - Original Depths-Sediment Only											
RA-226	pCi/g	10	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.24E+00	1.40E-01-7.87E-01	1.40E+00	1.39E+00	Use 95% Student's-t UCL
RA-228	pCi/g	10	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.27E+00	2.79E-01-1.57E+00	1.53E+00	1.45E+00	Use 95% Student's-t UCL
TH-228	pCi/g	10	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.14E-01	8.25E-02-1.80E-01	1.06E+00	9.12E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	4.85E-01-2.24E+00	SW/SD-01	0-0	9.82E-01	5.67E-02-1.60E-01	1.12E+00	1.30E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.99E-01	4.32E-02-1.24E-01	1.02E+00	8.05E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	10	0	5.74E-01-1.53E+01	SW/SD-05	0-0	4.52E+00	6.56E-02-1.57E-01	1.33E+00	9.26E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	2	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E-01	1.89E-01	7.00E-01	95% KM (t) UCL
U-238	pCi/g	10	0	6.31E-01-1.41E+01	SW/SD-05	0-0	4.52E+00	3.27E-02-1.40E-01	1.50E+00	9.18E+00	Use 95% Approximate Gamma UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - Top Void Removed - Combined Soil and Sediment											
AM-241	pCi/g	247	243	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	4.97E-02	95% KM (t) UCL
RA-226	pCi/g	261	19	3.58E-01-4.33E+01	IA1-3	0-0.5	2.75E+00	1.40E-01-4.74E+00	1.40E+00	2.99E+00	95% KM (BCA) UCL
RA-228	pCi/g	261	4	3.58E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	9.62E-01	6.20E-02-1.57E+00	1.53E+00	1.01E+00	95% KM (BCA) UCL
TH-228	pCi/g	255	0	2.85E-01-2.99E+00	IA5-15	0-0.5	8.22E-01	5.33E-03-1.82E-01	1.06E+00	8.54E-01	Use 95% Student's-t UCL
TH-230	pCi/g	259	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.12E+00	5.53E-03-1.88E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL
TH-232	pCi/g	261	0	2.42E-01-3.42E+00	IA5-15	0-0.5	7.96E-01	8.93E-03-1.24E-01	1.02E+00	8.32E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	261	26	5.23E-02-3.65E+01	IA1-3	0-0.5	2.10E+00	1.52E-02-4.18E+00	1.33E+00	2.31E+00	95% KM (BCA) UCL
U-235	pCi/g	261	247	7.41E-02-2.92E+00	IA1-3	0-0.5	7.22E-01	4.05E-02-1.17E+00	1.89E-01	1.49E-01	95% KM (t) UCL
U-238	pCi/g	261	33	4.68E-01-3.65E+01	IA1-3	0-0.5	2.15E+00	3.27E-02-4.18E+00	1.50E+00	2.38E+00	95% KM (BCA) UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill) - Surface Soils (0-2') - Top Void Removed-Soils Only											
AM-241	pCi/g	247	243	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	4.97E-02	95% KM (t) UCL
RA-226	pCi/g	251	19	3.58E-01-4.33E+01	IA1-3	0-0.5	2.81E+00	2.16E-01-4.74E+00	1.40E+00	3.12E+00	95% KM (BCA) UCL
RA-228	pCi/g	251	4	3.58E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	9.49E-01	6.20E-02-1.44E+00	1.53E+00	9.95E-01	95% KM (BCA) UCL
TH-228	pCi/g	245	0	2.85E-01-2.99E+00	IA5-15	0-0.5	8.22E-01	5.33E-03-1.82E-01	1.06E+00	8.56E-01	Use 95% Student's-t UCL
TH-230	pCi/g	249	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.13E+00	5.53E-03-1.88E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL
TH-232	pCi/g	251	0	2.42E-01-3.42E+00	IA5-15	0-0.5	8.00E-01	8.93E-03-1.12E-01	1.02E+00	8.37E-01	Use 95% Student's-t UCL
U-234	pCi/g	251	26	5.23E-02-3.65E+01	IA1-3	0-0.5	1.99E+00	1.52E-02-4.18E+00	1.33E+00	2.20E+00	95% KM (BCA) UCL
U-235	pCi/g	251	245	1.32E-01-2.92E+00	IA1-3	0-0.5	1.01E+00	5.81E-02-1.17E+00	1.89E-01	1.76E-01	95% KM (t) UCL
U-238	pCi/g	251	33	4.68E-01-3.65E+01	IA1-3	0-0.5	2.04E+00	4.69E-02-4.18E+00	1.50E+00	2.25E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - Top Void Removed-Sediment Only											
RA-226	pCi/g	10	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.24E+00	1.40E-01-7.87E-01	1.40E+00	1.39E+00	Use 95% Student's-t UCL
RA-228	pCi/g	10	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.27E+00	2.79E-01-1.57E+00	1.53E+00	1.45E+00	Use 95% Student's-t UCL
TH-228	pCi/g	10	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.14E-01	8.25E-02-1.80E-01	1.06E+00	9.12E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	4.85E-01-2.24E+00	SW/SD-01	0-0	9.82E-01	5.67E-02-1.60E-01	1.12E+00	1.30E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.99E-01	4.32E-02-1.24E-01	1.02E+00	8.05E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	10	0	5.74E-01-1.53E+01	SW/SD-05	0-0	4.52E+00	6.56E-02-1.57E-01	1.33E+00	9.26E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	2	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E-01	1.89E-01	7.00E-01	95% KM (t) UCL
U-238	pCi/g	10	0	6.31E-01-1.41E+01	SW/SD-05	0-0	4.52E+00	3.27E-02-1.40E-01	1.50E+00	9.18E+00	Use 95% Approximate Gamma UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - All Voids Removed - Combined Soil and Sediment											
AM-241	pCi/g	259	255	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	4.95E-02	95% KM (t) UCL
RA-226	pCi/g	273	20	3.58E-01-4.33E+01	IA1-3	0-0.5	2.74E+00	1.40E-01-4.74E+00	1.40E+00	2.95E+00	95% KM (BCA) UCL
RA-228	pCi/g	273	4	3.58E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	9.69E-01	6.20E-02-1.57E+00	1.53E+00	1.01E+00	95% KM (BCA) UCL
TH-228	pCi/g	267	0	2.85E-01-2.99E+00	IA5-15	0-0.5	8.27E-01	5.33E-03-1.82E-01	1.06E+00	8.58E-01	Use 95% Student's-t UCL
TH-230	pCi/g	271	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.12E+00	5.53E-03-1.88E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL
TH-232	pCi/g	273	0	2.42E-01-3.42E+00	IA5-15	0-0.5	7.96E-01	8.93E-03-1.24E-01	1.02E+00	8.31E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	273	26	5.23E-02-3.65E+01	IA1-3	0-0.5	2.09E+00	1.52E-02-4.18E+00	1.33E+00	2.31E+00	95% KM (BCA) UCL
U-235	pCi/g	273	259	7.41E-02-2.92E+00	IA1-3	0-0.5	7.22E-01	4.05E-02-1.17E+00	1.89E-01	1.46E-01	95% KM (t) UCL
U-238	pCi/g	273	33	4.68E-01-3.65E+01	IA1-3	0-0.5	2.14E+00	3.27E-02-4.18E+00	1.50E+00	2.30E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - All Voids Removed-Soils Only											
AM-241	pCi/g	259	255	4.54E-02-3.53E-01	IA6-19	0-0.5	1.32E-01	2.95E-02-3.53E-01	8.00E-02	4.95E-02	95% KM (t) UCL
RA-226	pCi/g	263	20	3.58E-01-4.33E+01	IA1-3	0-0.5	2.81E+00	2.16E-01-4.74E+00	1.40E+00	3.06E+00	95% KM (BCA) UCL
RA-228	pCi/g	263	4	3.58E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	9.58E-01	6.20E-02-1.44E+00	1.53E+00	9.96E-01	95% KM (BCA) UCL
TH-228	pCi/g	257	0	2.85E-01-2.99E+00	IA5-15	0-0.5	8.27E-01	5.33E-03-1.82E-01	1.06E+00	8.60E-01	Use 95% Student's-t UCL
TH-230	pCi/g	261	0	3.41E-01-4.14E+00	IA1-20	0-0.5	1.13E+00	5.53E-03-1.88E-01	1.12E+00	1.18E+00	Use 95% Student's-t UCL

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill) - Surface Soils (0-2') - All Voids Removed-Soils Only											
TH-232	pCi/g	263	0	2.42E-01-3.42E+00	IA5-15	0-0.5	8.00E-01	8.93E-03-1.13E-01	1.02E+00	8.35E-01	Use 95% Student's-t UCL
U-234	pCi/g	263	26	5.23E-02-3.65E+01	IA1-3	0-0.5	1.99E+00	1.52E-02-4.18E+00	1.33E+00	2.23E+00	95% KM (BCA) UCL
U-235	pCi/g	263	257	1.32E-01-2.92E+00	IA1-3	0-0.5	1.01E+00	5.81E-02-1.17E+00	1.89E-01	1.74E-01	95% KM (t) UCL
U-238	pCi/g	263	33	4.68E-01-3.65E+01	IA1-3	0-0.5	2.03E+00	4.69E-02-4.18E+00	1.50E+00	2.22E+00	95% KM (BCA) UCL
EU5 (Entire Landfill) - Surface Soils (0-2') - All Voids Removed-Sediment Only											
RA-226	pCi/g	10	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.24E+00	1.40E-01-7.87E-01	1.40E+00	1.39E+00	Use 95% Student's-t UCL
RA-228	pCi/g	10	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.27E+00	2.79E-01-1.57E+00	1.53E+00	1.45E+00	Use 95% Student's-t UCL
TH-228	pCi/g	10	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.14E-01	8.25E-02-1.80E-01	1.06E+00	9.12E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	4.85E-01-2.24E+00	SW/SD-01	0-0	9.82E-01	5.67E-02-1.60E-01	1.12E+00	1.30E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.99E-01	4.32E-02-1.24E-01	1.02E+00	8.05E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	10	0	5.74E-01-1.53E+01	SW/SD-05	0-0	4.52E+00	6.56E-02-1.57E-01	1.33E+00	9.26E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	2	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E-01	1.89E-01	7.00E-01	95% KM (t) UCL
U-238	pCi/g	10	0	6.31E-01-1.41E+01	SW/SD-05	0-0	4.52E+00	3.27E-02-1.40E-01	1.50E+00	9.18E+00	Use 95% Approximate Gamma UCL
EU5 (Entire Landfill)- All Depths - Combined Soil and Sediment											
AM-241	pCi/g	903	884	3.15E-02-6.05E-01	IA4-16	12.8-13.8	1.70E-01	2.71E-02-2.12E+00	8.12E-02	3.74E-02	95% KM (t) UCL
BE-7	pCi/g	2	2	-	-	-	-	2.21E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	8.7-9.7	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	917	43	3.58E-01-3.49E+03	IA1-5	2-3	1.34E+01	1.40E-01-1.68E+01	1.66E+00	2.12E+01	95% KM (BCA) UCL
RA-228	pCi/g	917	8	2.82E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.07E+00	4.96E-02-2.27E+00	1.32E+00	1.09E+00	95% KM (BCA) UCL
TH-228	pCi/g	903	0	2.85E-01-3.96E+00	IA1-B12	17.8-18.8	9.30E-01	3.99E-03-1.51E+00	1.14E+00	9.60E-01	Use 95% Student's-t UCL
TH-230	pCi/g	899	0	3.41E-01-1.64E+03	IA1-5	2-3	5.30E+00	5.53E-03-1.01E+00	1.26E+00	1.43E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	917	0	2.42E-01-7.08E+00	IA1-B6	13.9-14.9	9.08E-01	3.30E-03-6.73E-01	1.02E+00	9.41E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	917	89	3.02E-02-2.05E+03	IA1-5	2-3	1.03E+01	1.52E-02-1.96E+01	1.50E+00	2.07E+01	95% KM (Chebyshev) UCL
U-235	pCi/g	917	851	7.41E-02-1.59E+02	IA1-5	2-3	8.60E+00	4.05E-02-5.11E+00	1.69E-01	1.59E+00	95% KM (Chebyshev) UCL
U-238	pCi/g	917	113	3.38E-01-2.05E+03	IA1-5	2-3	1.06E+01	3.27E-02-1.96E+01	1.62E+00	2.07E+01	95% KM (Chebyshev) UCL
EU5 (Entire Landfill)- All Depths-Soils Only											
AM-241	pCi/g	903	884	3.15E-02-6.05E-01	IA4-16	13-14	1.70E-01	2.71E-02-2.12E+00	8.12E-02	3.74E-02	95% KM (t) UCL
BE-7	pCi/g	2	2	-	-	-	-	2.21E-01-6.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
RA-224	pCi/g	1	0	1.58E+00-1.58E+00	IA2-8	9-10	1.58E+00	1.58E+00-1.58E+00	-	0.00E+00	ProUCL did not calculate UCL95
RA-226	pCi/g	907	43	3.58E-01-3.49E+03	IA1-5	3-4	1.35E+01	2.16E-01-1.68E+01	1.66E+00	2.19E+01	95% KM (BCA) UCL
RA-228	pCi/g	907	8	2.82E-01-5.16E+00	TTLF-TREE-1-Soil	1-2	1.06E+00	4.96E-02-2.27E+00	1.32E+00	1.09E+00	95% KM (BCA) UCL
TH-228	pCi/g	893	0	2.85E-01-3.96E+00	IA1-B12	19-20	9.31E-01	3.99E-03-1.51E+00	1.14E+00	9.61E-01	Use 95% Student's-t UCL
TH-230	pCi/g	889	0	3.41E-01-1.64E+03	IA1-5	3-4	5.35E+00	5.53E-03-1.01E+00	1.26E+00	1.44E+01	Use 95% Chebyshev (Mean, Sd) UCL
TH-232	pCi/g	907	0	2.42E-01-7.08E+00	IA1-B6	15-16	9.11E-01	3.30E-03-6.73E-01	1.02E+00	9.44E-01	Use 95% Student's-t UCL

Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill)- All Depths-Soils Only											
U-234	pCi/g	907	89	3.02E-02-2.05E+03	IA1-5	3-4	1.03E+01	1.52E-02-1.96E+01	1.50E+00	2.09E+01	95% KM (Chebyshev) UCL
U-235	pCi/g	907	849	1.14E-01-1.59E+02	IA1-5	3-4	9.71E+00	5.81E-02-5.11E+00	1.69E-01	1.22E+00	95% KM (BCA) UCL
U-238	pCi/g	907	113	3.38E-01-2.05E+03	IA1-5	3-4	1.06E+01	4.69E-02-1.96E+01	1.62E+00	2.09E+01	95% KM (Chebyshev) UCL
EU5 (Entire Landfill)- All Depths-Sediment Only											
RA-226	pCi/g	10	0	6.70E-01-1.61E+00	SW/SD-08	0-0	1.24E+00	1.40E-01-7.87E-01	1.66E+00	1.39E+00	Use 95% Student's-t UCL
RA-228	pCi/g	10	0	8.70E-01-1.82E+00	SW/SD-08	0-0	1.27E+00	2.79E-01-1.57E+00	1.32E+00	1.45E+00	Use 95% Student's-t UCL
TH-228	pCi/g	10	0	5.88E-01-1.05E+00	SW/SD-01	0-0	8.14E-01	8.25E-02-1.80E-01	1.14E+00	9.12E-01	Use 95% Student's-t UCL
TH-230	pCi/g	10	0	4.85E-01-2.24E+00	SW/SD-01	0-0	9.82E-01	5.67E-02-1.60E-01	1.26E+00	1.30E+00	Use 95% Approximate Gamma UCL
TH-232	pCi/g	10	0	4.75E-01-1.02E+00	SW/SD-01	0-0	6.99E-01	4.32E-02-1.24E-01	1.02E+00	8.05E-01	Use 95% Student's-t UCL
TOTAL U	ug/g	10	0	1.49E+00-4.44E+01	SW/SD-05	0-0	1.01E+01	4.65E-02-4.98E-02	-	2.04E+01	Use 95% Approximate Gamma UCL
U-234	pCi/g	10	0	5.74E-01-1.53E+01	SW/SD-05	0-0	4.52E+00	6.56E-02-1.57E-01	1.50E+00	9.26E+00	Use 95% Approximate Gamma UCL
U-235	pCi/g	10	2	7.41E-02-1.39E+00	SW/SD-05	0-0	5.09E-01	4.05E-02-1.17E-01	1.69E-01	7.00E-01	95% KM (t) UCL
U-238	pCi/g	10	0	6.31E-01-1.41E+01	SW/SD-05	0-0	4.52E+00	3.27E-02-1.40E-01	1.62E+00	9.18E+00	Use 95% Approximate Gamma UCL
EU5 (Entire Landfill)- All Water (Groundwater and Surface Water)											
RA-226	pCi/l	39	5	1.67E-01-1.18E+01	TWP-2	0-0	1.65E+00	4.98E-02-1.05E+00	-	3.81E+00	97.5% KM (Chebyshev) UCL
RA-228	pCi/l	39	27	3.52E-01-4.07E+00	TWP-4	0-0	1.31E+00	4.08E-01-3.47E+00	-	9.85E-01	95% KM (t) UCL
TH-227	pCi/l	22	22	-	-	-	-	1.49E-01-3.26E-01	-	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/l	39	34	9.37E-02-2.97E+01	TTLF-TREE-3-GW	0-0	9.29E+00	7.23E-02-9.69E+00	-	2.76E+00	95% KM (t) UCL
TH-230	pCi/l	39	14	7.33E-02-4.50E+01	TTLF-TREE-3-GW	0-0	2.81E+00	2.69E-02-1.43E+01	-	1.37E+01	99% KM (Chebyshev) UCL
TH-232	pCi/l	39	33	2.57E-02-2.54E+01	TTLF-TREE-3-GW	0-0	7.17E+00	1.78E-02-8.32E+00	-	2.41E+00	95% KM (t) UCL
TOTAL U	ug/l	18	2	1.01E+00-1.62E+02	SW/SD-05	0-0	3.82E+01	1.00E+00-1.06E+00	-	8.30E+01	95% KM (Chebyshev) UCL
U-234	pCi/l	39	2	3.70E-01-1.64E+02	TTLF-TREE-4-GW	0-0	2.16E+01	2.30E-02-4.00E+01	-	4.34E+01	95% KM (Chebyshev) UCL
U-235	pCi/l	39	11	8.94E-02-1.35E+01	TTLF-TREE-4-GW	0-0	1.93E+00	2.70E-02-4.33E+00	-	4.14E+00	97.5% KM (Chebyshev) UCL
U-238	pCi/l	39	2	3.35E-01-1.63E+02	TTLF-TREE-4-GW	0-0	2.00E+01	6.20E-02-3.98E+01	-	4.15E+01	95% KM (Chebyshev) UCL
EU5 (Entire Landfill)- Groundwater											
RA-226	pCi/l	28	4	1.67E-01-1.18E+01	TWP-2	0-0	1.84E+00	4.98E-02-1.05E+00	-	4.84E+00	97.5% KM (Chebyshev) UCL
RA-228	pCi/l	28	19	3.52E-01-4.07E+00	TWP-4	0-0	1.38E+00	4.08E-01-3.47E+00	-	1.06E+00	95% KM (t) UCL
TH-227	pCi/l	12	12	-	-	-	-	1.49E-01-3.26E-01	-	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/l	28	23	9.37E-02-2.97E+01	TTLF-TREE-3-GW	0-0	9.29E+00	7.23E-02-9.69E+00	-	3.80E+00	95% KM (t) UCL
TH-230	pCi/l	28	7	7.33E-02-4.50E+01	TTLF-TREE-3-GW	0-0	3.30E+00	2.69E-02-1.43E+01	-	1.89E+01	99% KM (Chebyshev) UCL
TH-232	pCi/l	28	22	2.57E-02-2.54E+01	TTLF-TREE-3-GW	0-0	7.17E+00	1.78E-02-8.32E+00	-	3.33E+00	95% KM (t) UCL
TOTAL U	ug/l	10	2	1.01E+00-2.80E+01	BM-4	0-0	1.47E+01	1.00E+00-1.06E+00	-	1.90E+01	95% KM (t) UCL
U-234	pCi/l	28	2	3.70E-01-1.64E+02	TTLF-TREE-4-GW	0-0	2.26E+01	2.30E-02-4.00E+01	-	5.12E+01	95% KM (Chebyshev) UCL
U-235	pCi/l	28	7	8.94E-02-1.35E+01	TTLF-TREE-4-GW	0-0	1.78E+00	2.70E-02-4.33E+00	-	4.85E+00	97.5% KM (Chebyshev) UCL
U-238	pCi/l	28	2	3.35E-01-1.63E+02	TTLF-TREE-4-GW	0-0	2.04E+01	6.20E-02-3.98E+01	-	4.86E+01	95% KM (Chebyshev) UCL

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Tonawanda Landfill

Appendix E
Summary of All Results

Parameter	Units	# observ	# ND	Range of Det	LOCID of Max Det	Depth of Max Det	Mean (Det)	Range of MDL	Background Value	UCL95	UCL95 Method
EU5 (Entire Landfill)- Surface Water											
RA-226	pCi/l	11	1	3.63E-01-2.45E+00	SW/SD-04	0-0	1.19E+00	2.05E-01-6.03E-01	-	1.49E+00	95% KM (t) UCL
RA-228	pCi/l	11	8	1.01E+00-1.24E+00	TTLF-TREE-4-SW	0-0	1.09E+00	6.28E-01-2.63E+00	-	1.11E+00	95% KM (t) UCL
TH-227	pCi/l	10	10	-	-	-	-	1.60E-01-3.14E-01	-	0.00E+00	ProUCL did not calculate UCL95
TH-228	pCi/l	11	11	-	-	-	-	1.33E-01-3.34E-01	-	0.00E+00	ProUCL did not calculate UCL95
TH-230	pCi/l	11	7	1.73E-01-3.25E-01	SW/SD-11	0-0	2.61E-01	1.41E-01-2.87E-01	-	2.43E-01	95% KM (t) UCL
TH-232	pCi/l	11	11	-	-	-	-	7.66E-02-2.30E-01	-	0.00E+00	ProUCL did not calculate UCL95
TOTAL U	ug/l	8	0	1.12E+00-1.62E+02	SW/SD-05	0-0	6.18E+01	1.00E+00-1.06E+00	-	1.03E+02	Use 95% Student's-t UCL
U-234	pCi/l	11	0	6.10E-01-6.14E+01	SW/SD-05	0-0	1.92E+01	2.61E-01-2.01E+00	-	3.80E+01	Use 95% Approximate Gamma UCL
U-235	pCi/l	11	4	4.85E-01-6.44E+00	SW/SD-05	0-0	2.37E+00	3.22E-01-1.08E+00	-	2.83E+00	95% KM (t) UCL
U-238	pCi/l	11	0	6.17E-01-6.19E+01	SW/SD-05	0-0	1.91E+01	1.52E-01-2.30E+00	-	3.84E+01	Use 95% Approximate Gamma UCL

Appendix F
Risk and Dose Calculations

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Table F.1 RESRAD generated Dose to Source Ratios (DSR) for exposure to soil

Receptor	Year	Radionuclid	DSR: Water Independent Pathways (mrem/yr/pCi/g)							**DSR**
			Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Construction Worker	0	Ac-227	4.28E-01	6.44E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.82E-01	1.65E+00
Construction Worker	0	Pa-231	4.79E-02	1.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.33E-01	6.16E-01
Construction Worker	0	Pb-210	1.32E-03	2.22E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.86E-01	2.90E-01
Construction Worker	0	Ra-226	2.40E+00	8.71E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.72E-02	2.46E+00
Construction Worker	0	Ra-228	1.55E+00	5.66E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.93E-02	1.61E+00
Construction Worker	0	Th-228	1.84E+00	2.82E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-02	1.89E+00
Construction Worker	0	Th-230	7.84E-04	3.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-02	5.44E-02
Construction Worker	0	Th-232	8.86E-02	1.60E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-01	3.61E-01
Construction Worker	0	U-234	8.83E-05	1.28E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-02	2.42E-02
Construction Worker	0	U-235	1.65E-01	1.20E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-02	1.87E-01
Construction Worker	0	U-238	3.26E-02	1.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-02	5.48E-02
Construction Worker	1000	Ac-227	6.22E-15	9.36E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.46E-15	2.40E-14
Construction Worker	1000	Pa-231	4.55E-01	7.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E-01	2.17E+00
Construction Worker	1000	Pb-210	3.71E-17	6.27E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.07E-15	8.17E-15
Construction Worker	1000	Ra-226	1.55E+00	2.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-01	1.77E+00
Construction Worker	1000	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction Worker	1000	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction Worker	1000	Th-230	8.33E-01	3.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-01	1.00E+00
Construction Worker	1000	Th-232	3.44E+00	1.92E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-01	3.82E+00
Construction Worker	1000	U-234	4.07E-03	1.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-02	2.82E-02
Construction Worker	1000	U-235	1.67E-01	2.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-02	2.25E-01
Construction Worker	1000	U-238	3.14E-02	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-02	5.28E-02
Trespasser Adult	0	Ac-227	2.25E-02	5.65E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.38E-03	3.45E-02
Trespasser Adult	0	Pa-231	2.52E-03	1.18E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.75E-03	8.45E-03
Trespasser Adult	0	Pb-210	6.92E-05	1.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-03	3.23E-03
Trespasser Adult	0	Ra-226	1.26E-01	7.64E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.27E-04	1.27E-01
Trespasser Adult	0	Ra-228	8.15E-02	4.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.50E-04	8.22E-02
Trespasser Adult	0	Th-228	9.67E-02	2.47E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-04	9.73E-02
Trespasser Adult	0	Th-230	4.13E-05	2.78E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-04	5.60E-04
Trespasser Adult	0	Th-232	4.66E-03	1.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-03	7.30E-03
Trespasser Adult	0	U-234	4.65E-06	1.13E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-04	2.41E-04
Trespasser Adult	0	U-235	8.66E-03	1.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-04	8.88E-03

Table F.1 RESRAD generated Dose to Source Ratios (DSR) for exposure to soil

Receptor	Year	Radionuclid	DSR: Water Independent Pathways (mrem/yr/pCi/g)							**DSR**
			Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Trespasser Adult	0	U-238	1.72E-03	1.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-04	1.94E-03
Trespasser Adult	1000	Ac-227	3.27E-16	8.21E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.28E-17	5.02E-16
Trespasser Adult	1000	Pa-231	2.40E-02	6.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-02	4.11E-02
Trespasser Adult	1000	Pb-210	1.95E-18	5.50E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.85E-17	9.10E-17
Trespasser Adult	1000	Ra-226	8.13E-02	1.76E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-03	8.38E-02
Trespasser Adult	1000	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Adult	1000	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Adult	1000	Th-230	4.38E-02	2.82E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-03	4.56E-02
Trespasser Adult	1000	Th-232	1.81E-01	1.68E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-03	1.85E-01
Trespasser Adult	1000	U-234	2.14E-04	1.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-04	4.51E-04
Trespasser Adult	1000	U-235	8.81E-03	2.36E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.34E-04	9.38E-03
Trespasser Youth	1000	U-238	1.65E-03	9.71E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-04	1.86E-03
Trespasser Youth	0	Ac-227	1.45E-01	3.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.09E-02	2.18E-01
Trespasser Youth	0	Pa-231	1.62E-02	6.72E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.05E-02	5.34E-02
Trespasser Youth	0	Pb-210	4.44E-04	1.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-02	2.07E-02
Trespasser Youth	0	Ra-226	8.10E-01	4.34E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-03	8.14E-01
Trespasser Youth	0	Ra-228	5.23E-01	2.82E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.17E-03	5.27E-01
Trespasser Youth	0	Th-228	6.21E-01	1.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-03	6.24E-01
Trespasser Youth	0	Th-230	2.65E-04	1.58E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-03	3.39E-03
Trespasser Youth	0	Th-232	2.99E-02	7.97E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.92E-03	4.58E-02
Trespasser Youth	0	U-234	2.98E-05	6.40E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.95E-04	1.47E-03
Trespasser Youth	0	U-235	5.56E-02	5.97E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.52E-04	5.69E-02
Trespasser Youth	0	U-238	1.10E-02	5.72E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.55E-04	1.24E-02
Trespasser Youth	1000	Ac-227	2.10E-15	4.67E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.95E-16	3.16E-15
Trespasser Youth	1000	Pa-231	1.54E-01	3.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.83E-02	2.59E-01
Trespasser Youth	1000	Pb-210	1.25E-17	3.12E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.68E-16	5.84E-16
Trespasser Youth	1000	Ra-226	5.22E-01	1.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-02	5.38E-01
Trespasser Youth	1000	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	1000	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	1000	Th-230	2.81E-01	1.60E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.68E-03	2.93E-01
Trespasser Youth	1000	Th-232	1.16E+00	9.55E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-02	1.18E+00
Trespasser Youth	1000	U-234	1.37E-03	6.27E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.13E-04	2.81E-03

Table F.1 RESRAD generated Dose to Source Ratios (DSR) for exposure to soil

Receptor	Year	Radionuclid	DSR: Water Independent Pathways (mrem/yr/pCi/g)							**DSR**
			Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Trespasser Youth	1000	U-235	5.65E-02	1.34E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-03	6.00E-02
Trespasser Youth	1000	U-238	1.06E-02	5.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.28E-04	1.19E-02

Table F.2. RESRAD Generated Risk-to-Source Ratios (RSRs) by Pathway, Receptor and Medium

				RSR: Water Independent Pathways (risk/lifetime per pCi/g)							**RSR**
Receptor	Mediu	Year	Radionuc	Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Construction Worker	Soil	0	Ac-227	3.12E-07	2.04E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-08	3.58E-07
Construction Worker	Soil	0	Pa-231	3.50E-08	7.74E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.44E-09	5.21E-08
Construction Worker	Soil	0	Pb-210	9.04E-10	2.95E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-07	1.39E-07
Construction Worker	Soil	0	Ra-226	1.82E-06	2.80E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-08	1.85E-06
Construction Worker	Soil	0	Ra-228	1.17E-06	6.18E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.65E-08	1.24E-06
Construction Worker	Soil	0	Th-228	1.40E-06	1.18E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-08	1.43E-06
Construction Worker	Soil	0	Th-230	5.73E-10	3.31E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.76E-09	8.64E-09
Construction Worker	Soil	0	Th-232	6.72E-08	4.55E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.74E-09	8.05E-08
Construction Worker	Soil	0	U-234	5.54E-11	2.70E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-09	6.57E-09
Construction Worker	Soil	0	U-235	1.18E-07	2.43E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-09	1.24E-07
Construction Worker	Soil	0	U-238	2.44E-08	2.30E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.82E-09	3.15E-08
Construction Worker	Soil	1000	Ac-227	4.53E-21	2.96E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-22	5.20E-21
Construction Worker	Soil	1000	Pa-231	3.32E-07	2.69E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-08	3.92E-07
Construction Worker	Soil	1000	Pb-210	2.55E-23	8.31E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-21	3.93E-21
Construction Worker	Soil	1000	Ra-226	1.17E-06	3.72E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-07	1.28E-06
Construction Worker	Soil	1000	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction Worker	Soil	1000	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction Worker	Soil	1000	Th-230	6.32E-07	5.20E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-08	6.95E-07
Construction Worker	Soil	1000	Th-232	2.61E-06	2.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.86E-08	2.71E-06
Construction Worker	Soil	1000	U-234	3.07E-09	2.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.94E-09	9.65E-09
Construction Worker	Soil	1000	U-235	1.20E-07	2.89E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.44E-09	1.27E-07
Construction Worker	Soil	1000	U-238	2.35E-08	2.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-09	3.03E-08
Trespasser Adult	Soil	0	Ac-227	3.22E-07	3.51E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.53E-09	3.31E-07
Trespasser Adult	Soil	0	Pa-231	2.25E-07	3.89E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.02E-09	2.35E-07
Trespasser Adult	Soil	0	Pb-210	9.42E-10	5.11E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-08	3.08E-08
Trespasser Adult	Soil	0	Ra-226	2.86E-06	9.93E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-08	2.88E-06
Trespasser Adult	Soil	0	Ra-228	1.11E-06	1.28E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.54E-09	1.12E-06
Trespasser Adult	Soil	0	Th-228	2.42E-07	3.39E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-10	2.43E-07
Trespasser Adult	Soil	0	Th-230	1.89E-08	8.76E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-09	2.14E-08
Trespasser Adult	Soil	0	Th-232	2.82E-06	4.30E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-08	2.84E-06
Trespasser Adult	Soil	0	U-234	8.91E-11	7.11E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-09	2.06E-09
Trespasser Adult	Soil	0	U-235	1.86E-07	6.41E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-09	1.88E-07
Trespasser Adult	Soil	0	U-238	3.85E-08	6.05E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-09	4.07E-08
Trespasser Adult	Soil	1000	Ac-227	4.68E-21	5.10E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.03E-23	4.82E-21
Trespasser Adult	Soil	1000	Pa-231	5.24E-07	7.07E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-08	5.42E-07
Trespasser Adult	Soil	1000	Pb-210	2.66E-23	1.44E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.29E-22	8.70E-22
Trespasser Adult	Soil	1000	Ra-226	1.84E-06	9.72E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-08	1.87E-06
Trespasser Adult	Soil	1000	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table F.2. RESRAD Generated Risk-to-Source Ratios (RSRs) by Pathway, Receptor and Medium

				RSR: Water Independent Pathways (risk/lifetime per pCi/g)							**RSR**
Receptor	Mediu	Year	Radionuc	Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Trespasser Adult	Soil	1000	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Adult	Soil	1000	Th-230	1.01E-06	1.38E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-08	1.03E-06
Trespasser Adult	Soil	1000	Th-232	4.12E-06	5.85E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.58E-08	4.16E-06
Trespasser Adult	Soil	1000	U-234	4.98E-09	6.92E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-09	6.97E-09
Trespasser Adult	Soil	1000	U-235	1.90E-07	7.63E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-09	1.92E-07
Trespasser Youth	Soil	1000	U-238	3.70E-08	5.83E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-09	3.91E-08
Trespasser Youth	Soil	0	Ac-227	1.07E-06	1.03E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-08	1.10E-06
Trespasser Youth	Soil	0	Pa-231	3.38E-07	6.52E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-08	3.56E-07
Trespasser Youth	Soil	0	Pb-210	3.11E-09	1.49E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.69E-08	1.02E-07
Trespasser Youth	Soil	0	Ra-226	7.36E-06	1.94E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.65E-08	7.40E-06
Trespasser Youth	Soil	0	Ra-228	5.14E-06	5.13E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.20E-08	5.18E-06
Trespasser Youth	Soil	0	Th-228	1.54E-06	1.90E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-09	1.54E-06
Trespasser Youth	Soil	0	Th-230	1.99E-08	1.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.09E-09	2.59E-08
Trespasser Youth	Soil	0	Th-232	4.03E-06	6.41E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.18E-08	4.07E-06
Trespasser Youth	Soil	0	U-234	2.25E-10	1.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E-09	5.06E-09
Trespasser Youth	Soil	0	U-235	4.77E-07	1.46E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-09	4.82E-07
Trespasser Youth	Soil	0	U-238	9.89E-08	1.38E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.07E-09	1.04E-07
Trespasser Youth	Soil	1000	Ac-227	1.55E-20	1.50E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.66E-22	1.59E-20
Trespasser Youth	Soil	1000	Pa-231	1.34E-06	1.61E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-08	1.39E-06
Trespasser Youth	Soil	1000	Pb-210	8.76E-23	4.21E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-21	2.86E-21
Trespasser Youth	Soil	1000	Ra-226	4.74E-06	2.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.65E-08	4.83E-06
Trespasser Youth	Soil	1000	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	Soil	1000	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	Soil	1000	Th-230	2.57E-06	3.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.93E-08	2.62E-06
Trespasser Youth	Soil	1000	Th-232	1.06E-05	1.33E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-08	1.07E-05
Trespasser Youth	Soil	1000	U-234	1.26E-08	1.57E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.33E-09	1.75E-08
Trespasser Youth	Soil	1000	U-235	4.86E-07	1.73E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.75E-09	4.92E-07
Trespasser Youth	Soil	1000	U-238	9.51E-08	1.33E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.92E-09	1.00E-07

Table F.3. Risk Assessment Results for all soil depths

	Tonawanda Landfill re-BRA - Construction Worker Radiological Risk Estimates for Subsurface Soil													
			Gross	Average										
			EPC	BKG	EPC		Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)		Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU3 SB	0	Ac-227	0.167	0.17	1.67E-01		5.2E-08	3.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-09	6.0E-08
EU3 SB	0	Pa-231	0.167	0.17	1.67E-01		5.8E-09	1.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-09	8.7E-09
EU3 SB	0	Pb-210	3.39	1.66	3.39E+00		3.1E-09	1.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-07	4.7E-07
EU3 SB	0	Ra-226	3.39	1.66	3.39E+00		**6.2E-06**	9.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.7E-08	**6.3E-06**
EU3 SB	0	Ra-228	1.28	1.32	1.28E+00		**1.5E-06**	7.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.2E-08	**1.6E-06**
EU3 SB	0	Th-228	1.11	1.14	1.11E+00		**1.6E-06**	1.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-08	**1.6E-06**
EU3 SB	0	Th-230	1.46	1.26	1.46E+00		8.4E-10	4.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E-09	1.3E-08
EU3 SB	0	Th-232	1.06	1.02	1.06E+00		7.1E-08	4.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-09	8.5E-08
EU3 SB	0	U-234	2.27	1.50	2.27E+00		1.3E-10	6.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.7E-09	1.5E-08
EU3 SB	0	U-235	0.17	0.17	1.67E-01		2.0E-08	4.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.5E-10	2.1E-08
EU3 SB	0	U-238	2.28	1.62	2.28E+00		5.6E-08	5.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-08	7.2E-08
												Total		1.0E-05
EU3 SB	1000	Ac-227	0.167	0.17	1.67E-01		7.6E-22	4.9E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-23	8.7E-22
EU3 SB	1000	Pa-231	0.167	0.17	1.67E-01		5.5E-08	4.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-09	6.6E-08
EU3 SB	1000	Pb-210	3.39	1.66	3.39E+00		8.6E-23	2.8E-22	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-20	1.3E-20
EU3 SB	1000	Ra-226	3.39	1.66	3.39E+00		**4.0E-06**	1.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-07	**4.3E-06**
EU3 SB	1000	Ra-228	1.28	1.32	1.28E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU3 SB	1000	Th-228	1.11	1.14	1.11E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU3 SB	1000	Th-230	1.46	1.26	1.46E+00		9.2E-07	7.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.5E-08	**1.0E-06**
EU3 SB	1000	Th-232	1.06	1.02	1.06E+00		**2.8E-06**	2.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.3E-08	**2.9E-06**
EU3 SB	1000	U-234	2.27	1.50	2.27E+00		7.0E-09	6.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-09	2.2E-08
EU3 SB	1000	U-235	0.17	0.17	1.67E-01		2.0E-08	4.8E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E-10	2.1E-08
EU3 SB	1000	U-238	2.28	1.62	2.28E+00		5.3E-08	5.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-08	6.9E-08
												Total		8.4E-06

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.4. Dose Assessment Results for all soil depths

Tonawanda re-BRA - Construction Worker Radiological Dose Estimates for Subsurface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU3 SB	0	Ac-227	0.167	0.17	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	0	Pa-231	0.167	0.17	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	0	Pb-210	3.39	1.66	1.73E+00	2.3E-03	3.8E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.95E-01	5.0E-01
EU3 SB	0	Ra-226	3.39	1.66	1.73E+00	4.1E+00	1.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.90E-02	4.2E+00
EU3 SB	0	Ra-228	1.28	1.32	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	0	Th-228	1.11	1.14	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	0	Th-230	1.46	1.26	2.00E-01	1.6E-04	6.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.38E-03	1.1E-02
EU3 SB	0	Th-232	1.06	1.02	4.00E-02	3.5E-03	6.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.50E-03	1.4E-02
EU3 SB	0	U-234	2.27	1.50	7.70E-01	6.8E-05	9.9E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.70E-03	1.9E-02
EU3 SB	0	U-235	0.17	0.17	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	0	U-238	2.28	1.62	6.60E-01	2.2E-02	7.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.08E-03	3.6E-02
												Total	**4.8E+00**
EU3 SB	1000	Ac-227	0.167	0.17	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	1000	Pa-231	0.167	0.17	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	1000	Pb-210	3.39	1.66	1.73E+00	6.4E-17	1.1E-16	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.40E-14	1.4E-14
EU3 SB	1000	Ra-226	3.39	1.66	1.73E+00	2.7E+00	3.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.86E-01	3.1E+00
EU3 SB	1000	Ra-228	1.28	1.32	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	1000	Th-228	1.11	1.14	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	1000	Th-230	1.46	1.26	2.00E-01	1.7E-01	6.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.75E-02	2.0E-01
EU3 SB	1000	Th-232	1.06	1.02	4.00E-02	1.4E-01	7.7E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.87E-03	1.5E-01
EU3 SB	1000	U-234	2.27	1.50	7.70E-01	3.1E-03	9.7E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.90E-03	2.2E-02
EU3 SB	1000	U-235	0.17	0.17	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SB	1000	U-238	2.28	1.62	6.60E-01	2.1E-02	7.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.82E-03	3.5E-02
												Total	**3.5E+00**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Adult Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU1 SS	0	Ac-227	0.22	0.19	2.20E-01	7.1E-08	7.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-09	7.3E-08
EU1 SS	0	Pa-231	0.22	0.19	2.20E-01	5.0E-08	8.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-09	5.2E-08
EU1 SS	0	Pb-210	3.54	1.40	3.54E+00	3.3E-09	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-07	1.1E-07
EU1 SS	0	Ra-226	3.54	1.40	3.54E+00	**1.0E-05**	3.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.9E-08	**1.0E-05**
EU1 SS	0	Ra-228	1.08	1.53	1.08E+00	**1.2E-06**	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-09	**1.2E-06**
EU1 SS	0	Th-228	0.899	1.06	8.99E-01	2.2E-07	3.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-10	2.2E-07
EU1 SS	0	Th-230	1.3	1.12	1.30E+00	2.5E-08	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-09	2.8E-08
EU1 SS	0	Th-232	0.874	1.02	8.74E-01	**2.5E-06**	3.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-08	**2.5E-06**
EU1 SS	0	U-234	2.96	1.33	2.96E+00	2.6E-10	2.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.7E-09	6.1E-09
EU1 SS	0	U-235	0.22	0.19	2.20E-01	4.1E-08	1.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.8E-10	4.1E-08
EU1 SS	0	U-238	3	1.50	3.00E+00	1.2E-07	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-09	1.2E-07
												Total	1.5E-05
EU1 SS	1000	Ac-227	0.22	0.19	2.20E-01	1.0E-21	1.1E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-23	1.1E-21
EU1 SS	1000	Pa-231	0.22	0.19	2.20E-01	1.2E-07	1.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-09	1.2E-07
EU1 SS	1000	Pb-210	3.54	1.4	3.54E+00	9.4E-23	5.1E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-21	3.1E-21
EU1 SS	1000	Ra-226	3.54	1.4	3.54E+00	**6.5E-06**	3.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-07	**6.6E-06**
EU1 SS	1000	Ra-228	1.08	1.53	1.08E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1 SS	1000	Th-228	0.899	1.06	8.99E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1 SS	1000	Th-230	1.3	1.12	1.30E+00	**1.3E-06**	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-08	**1.3E-06**
EU1 SS	1000	Th-232	0.874	1.02	8.74E-01	**3.6E-06**	5.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-08	**3.6E-06**
EU1 SS	1000	U-234	2.96	1.33	2.96E+00	1.5E-08	2.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-09	2.1E-08
EU1 SS	1000	U-235	0.22	0.19	2.20E-01	4.2E-08	1.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-10	4.2E-08
EU1 SS	1000	U-238	3	1.50	3.00E+00	1.1E-07	1.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-09	1.2E-07
												Total	1.2E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Adult Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU2 SS	0	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	0	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	0	Pb-210	2.36	1.4	2.36E+00	2.2E-09	1.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E-08	7.3E-08
EU2 SS	0	Ra-226	2.36	1.4	2.36E+00	**6.7E-06**	2.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-08	**6.8E-06**
EU2 SS	0	Ra-228	0.902	1.53	9.02E-01	**1.0E-06**	1.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-09	**1.0E-06**
EU2 SS	0	Th-228	0.778	1.06	7.78E-01	1.9E-07	2.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.0E-10	1.9E-07
EU2 SS	0	Th-230	1.02	1.12	1.02E+00	1.9E-08	8.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-09	2.2E-08
EU2 SS	0	Th-232	0.779	1.02	7.79E-01	**2.2E-06**	3.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-08	**2.2E-06**
EU2 SS	0	U-234	1.39	1.33	1.39E+00	1.2E-10	9.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-09	2.9E-09
EU2 SS	0	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	0	U-238	1.41	1.50	1.41E+00	5.4E-08	8.5E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-09	5.7E-08
												Total	1.0E-05
EU2 SS	1000	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Pb-210	2.36	1.4	2.36E+00	6.3E-23	3.4E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-21	2.1E-21
EU2 SS	1000	Ra-226	2.36	1.4	2.36E+00	**4.3E-06**	2.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.9E-08	**4.4E-06**
EU2 SS	1000	Ra-228	0.902	1.53	9.02E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Th-228	0.778	1.06	7.78E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Th-230	1.02	1.12	1.02E+00	**1.0E-06**	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-08	**1.1E-06**
EU2 SS	1000	Th-232	0.779	1.02	7.79E-01	**3.2E-06**	4.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-08	**3.2E-06**
EU2 SS	1000	U-234	1.39	1.33	1.39E+00	6.9E-09	9.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-09	9.7E-09
EU2 SS	1000	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	U-238	1.41	1.50	1.41E+00	5.2E-08	8.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-09	5.5E-08
												Total	8.8E-06

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Adult Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU3 SS	0	Ac-227	0.156	0.19	1.56E-01	5.0E-08	5.5E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-10	5.2E-08
EU3 SS	0	Pa-231	0.156	0.19	1.56E-01	3.5E-08	6.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.4E-10	3.7E-08
EU3 SS	0	Pb-210	2.94	1.4	2.94E+00	2.8E-09	1.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-08	9.1E-08
EU3 SS	0	Ra-226	2.94	1.4	2.94E+00	**8.4E-06**	2.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.6E-08	**8.5E-06**
EU3 SS	0	Ra-228	1.08	1.53	1.08E+00	**1.2E-06**	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-09	**1.2E-06**
EU3 SS	0	Th-228	0.952	1.06	9.52E-01	2.3E-07	3.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-10	2.3E-07
EU3 SS	0	Th-230	1.27	1.12	1.27E+00	2.4E-08	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-09	2.7E-08
EU3 SS	0	Th-232	0.929	1.02	9.29E-01	**2.6E-06**	4.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-08	**2.6E-06**
EU3 SS	0	U-234	2.06	1.33	2.06E+00	1.8E-10	1.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-09	4.2E-09
EU3 SS	0	U-235	0.16	0.19	1.56E-01	2.9E-08	1.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-10	2.9E-08
EU3 SS	0	U-238	2.11	1.50	2.11E+00	8.1E-08	1.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-09	8.6E-08
												Total	1.3E-05
EU3 SS	1000	Ac-227	0.156	0.19	1.56E-01	7.3E-22	8.0E-24	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-23	7.5E-22
EU3 SS	1000	Pa-231	0.156	0.19	1.56E-01	8.2E-08	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-09	8.4E-08
EU3 SS	1000	Pb-210	2.94	1.4	2.94E+00	7.8E-23	4.2E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-21	2.6E-21
EU3 SS	1000	Ra-226	2.94	1.4	2.94E+00	**5.4E-06**	2.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.9E-08	**5.5E-06**
EU3 SS	1000	Ra-228	1.08	1.53	1.08E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU3 SS	1000	Th-228	0.952	1.06	9.52E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU3 SS	1000	Th-230	1.27	1.12	1.27E+00	**1.3E-06**	1.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-08	**1.3E-06**
EU3 SS	1000	Th-232	0.929	1.02	9.29E-01	**3.8E-06**	5.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-08	**3.9E-06**
EU3 SS	1000	U-234	2.06	1.33	2.06E+00	1.0E-08	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-09	1.4E-08
EU3 SS	1000	U-235	0.16	0.19	1.56E-01	3.0E-08	1.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-10	3.0E-08
EU3 SS	1000	U-238	2.11	1.50	2.11E+00	7.8E-08	1.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-09	8.3E-08
												Total	1.1E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Adult Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
Site-wide SS	0	Ac-227	0.149	0.19	1.49E-01	4.8E-08	5.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-10	4.9E-08
Site-wide SS	0	Pa-231	0.149	0.19	1.49E-01	3.4E-08	5.8E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-10	3.5E-08
Site-wide SS	0	Pb-210	2.99	1.4	2.99E+00	2.8E-09	1.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.8E-08	9.2E-08
Site-wide SS	0	Ra-226	2.99	1.4	2.99E+00	**8.5E-06**	3.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.7E-08	**8.6E-06**
Site-wide SS	0	Ra-228	1.01	1.53	1.01E+00	**1.1E-06**	1.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.6E-09	**1.1E-06**
Site-wide SS	0	Th-228	0.854	1.06	8.54E-01	2.1E-07	2.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-10	2.1E-07
Site-wide SS	0	Th-230	1.18	1.12	1.18E+00	2.2E-08	1.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-09	2.5E-08
Site-wide SS	0	Th-232	0.832	1.02	8.32E-01	**2.3E-06**	3.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-08	**2.4E-06**
Site-wide SS	0	U-234	2.31	1.33	2.31E+00	2.1E-10	1.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-09	4.7E-09
Site-wide SS	0	U-235	0.149	0.19	1.49E-01	2.8E-08	9.5E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-10	2.8E-08
Site-wide SS	0	U-238	2.38	1.50	2.38E+00	9.2E-08	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-09	9.7E-08
												Total	1.3E-05
Site-wide SS	1000	Ac-227	0.149	0.19	1.49E-01	7.0E-22	7.6E-24	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-23	7.2E-22
Site-wide SS	1000	Pa-231	0.149	0.19	1.49E-01	7.8E-08	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-09	8.1E-08
Site-wide SS	1000	Pb-210	2.99	1.4	2.99E+00	7.9E-23	4.3E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-21	2.6E-21
Site-wide SS	1000	Ra-226	2.99	1.4	2.99E+00	**5.5E-06**	2.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-07	**5.6E-06**
Site-wide SS	1000	Ra-228	1.01	1.53	1.01E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide SS	1000	Th-228	0.854	1.06	8.54E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide SS	1000	Th-230	1.18	1.12	1.18E+00	**1.2E-06**	1.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-08	**1.2E-06**
Site-wide SS	1000	Th-232	0.832	1.02	8.32E-01	**3.4E-06**	4.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-08	**3.5E-06**
Site-wide SS	1000	U-234	2.31	1.33	2.31E+00	1.2E-08	1.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-09	1.6E-08
Site-wide SS	1000	U-235	0.149	0.19	1.49E-01	2.8E-08	1.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-10	2.9E-08
Site-wide SS	1000	U-238	2.38	1.50	2.38E+00	8.8E-08	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-09	9.3E-08
												Total	1.0E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Youth Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU1 SS	0	Ac-227	0.22	0.19	2.20E-01	2.3E-07	2.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.0E-09	2.4E-07
EU1 SS	0	Pa-231	0.22	0.19	2.20E-01	7.4E-08	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-09	7.8E-08
EU1 SS	0	Pb-210	3.54	1.40	3.54E+00	1.1E-08	5.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-07	3.6E-07
EU1 SS	0	Ra-226	3.54	1.40	3.54E+00	**2.6E-05**	6.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-07	**2.6E-05**
EU1 SS	0	Ra-228	1.08	1.53	1.08E+00	**5.5E-06**	5.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-08	**5.6E-06**
EU1 SS	0	Th-228	0.899	1.06	8.99E-01	**1.4E-06**	1.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-09	**1.4E-06**
EU1 SS	0	Th-230	1.3	1.12	1.30E+00	2.6E-08	2.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-09	3.4E-08
EU1 SS	0	Th-232	0.874	1.02	8.74E-01	**3.5E-06**	5.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.8E-08	**3.6E-06**
EU1 SS	0	U-234	2.96	1.33	2.96E+00	6.7E-10	4.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-09	1.5E-08
EU1 SS	0	U-235	0.22	0.19	2.20E-01	1.1E-07	3.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.2E-10	1.1E-07
EU1 SS	0	U-238	3	1.50	3.00E+00	3.0E-07	4.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-08	3.1E-07
												Total	3.8E-05
EU1 SS	1000	Ac-227	0.22	0.19	2.20E-01	3.4E-21	3.3E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-23	3.5E-21
EU1 SS	1000	Pa-231	0.22	0.19	2.20E-01	3.0E-07	3.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-09	3.1E-07
EU1 SS	1000	Pb-210	3.54	1.4	3.54E+00	3.1E-22	1.5E-22	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.7E-21	1.0E-20
EU1 SS	1000	Ra-226	3.54	1.4	3.54E+00	**1.7E-05**	7.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.1E-07	**1.7E-05**
EU1 SS	1000	Ra-228	1.08	1.53	1.08E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1 SS	1000	Th-228	0.899	1.06	8.99E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1 SS	1000	Th-230	1.3	1.12	1.30E+00	**3.3E-06**	4.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-08	**3.4E-06**
EU1 SS	1000	Th-232	0.874	1.02	8.74E-01	**9.3E-06**	1.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.8E-08	**9.3E-06**
EU1 SS	1000	U-234	2.96	1.33	2.96E+00	3.7E-08	4.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.9E-09	5.2E-08
EU1 SS	1000	U-235	0.22	0.19	2.20E-01	1.1E-07	3.8E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.3E-10	1.1E-07
EU1 SS	1000	U-238	3	1.50	3.00E+00	2.9E-07	4.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-08	3.0E-07
												Total	3.1E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Youth Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU2 SS	0	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	0	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	0	Pb-210	2.36	1.4	2.36E+00	7.3E-09	3.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-07	2.4E-07
EU2 SS	0	Ra-226	2.36	1.4	2.36E+00	**1.7E-05**	4.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-08	**1.7E-05**
EU2 SS	0	Ra-228	0.902	1.53	9.02E-01	**4.6E-06**	4.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-08	**4.7E-06**
EU2 SS	0	Th-228	0.778	1.06	7.78E-01	**1.2E-06**	1.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-09	**1.2E-06**
EU2 SS	0	Th-230	1.02	1.12	1.02E+00	2.0E-08	2.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-09	2.6E-08
EU2 SS	0	Th-232	0.779	1.02	7.79E-01	**3.1E-06**	5.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-08	**3.2E-06**
EU2 SS	0	U-234	1.39	1.33	1.39E+00	3.1E-10	2.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-09	7.0E-09
EU2 SS	0	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	0	U-238	1.41	1.50	1.41E+00	1.4E-07	1.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.7E-09	1.5E-07
												Total	2.7E-05
EU2 SS	1000	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Pb-210	2.36	1.4	2.36E+00	2.1E-22	9.9E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-21	6.8E-21
EU2 SS	1000	Ra-226	2.36	1.4	2.36E+00	**1.1E-05**	5.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-07	**1.1E-05**
EU2 SS	1000	Ra-228	0.902	1.53	9.02E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Th-228	0.778	1.06	7.78E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	Th-230	1.02	1.12	1.02E+00	**2.6E-06**	3.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-08	**2.7E-06**
EU2 SS	1000	Th-232	0.779	1.02	7.79E-01	**8.2E-06**	1.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.2E-08	**8.3E-06**
EU2 SS	1000	U-234	1.39	1.33	1.39E+00	1.7E-08	2.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-09	2.4E-08
EU2 SS	1000	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU2 SS	1000	U-238	1.41	1.50	1.41E+00	1.3E-07	1.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-09	1.4E-07
												Total	2.3E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Youth Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU3 SS	0	Ac-227	0.156	0.19	1.56E-01	1.7E-07	1.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-09	1.7E-07
EU3 SS	0	Pa-231	0.156	0.19	1.56E-01	5.3E-08	1.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-09	5.6E-08
EU3 SS	0	Pb-210	2.94	1.4	2.94E+00	9.1E-09	4.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.8E-07	3.0E-07
EU3 SS	0	Ra-226	2.94	1.4	2.94E+00	**2.2E-05**	5.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-07	**2.2E-05**
EU3 SS	0	Ra-228	1.08	1.53	1.08E+00	**5.5E-06**	5.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-08	**5.6E-06**
EU3 SS	0	Th-228	0.952	1.06	9.52E-01	**1.5E-06**	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.1E-09	**1.5E-06**
EU3 SS	0	Th-230	1.27	1.12	1.27E+00	2.5E-08	2.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.2E-09	3.3E-08
EU3 SS	0	Th-232	0.929	1.02	9.29E-01	**3.7E-06**	6.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-08	**3.8E-06**
EU3 SS	0	U-234	2.06	1.33	2.06E+00	4.6E-10	3.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.6E-09	1.0E-08
EU3 SS	0	U-235	0.16	0.19	1.56E-01	7.4E-08	2.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.1E-10	7.5E-08
EU3 SS	0	U-238	2.11	1.50	2.11E+00	2.1E-07	2.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-09	2.2E-07
												Total	3.3E-05
EU3 SS	1000	Ac-227	0.156	0.19	1.56E-01	2.4E-21	2.3E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-23	2.5E-21
EU3 SS	1000	Pa-231	0.156	0.19	1.56E-01	2.1E-07	2.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-09	2.2E-07
EU3 SS	1000	Pb-210	2.94	1.4	2.94E+00	2.6E-22	1.2E-22	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.0E-21	8.4E-21
EU3 SS	1000	Ra-226	2.94	1.4	2.94E+00	**1.4E-05**	6.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-07	**1.4E-05**
EU3 SS	1000	Ra-228	1.08	1.53	1.08E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU3 SS	1000	Th-228	0.952	1.06	9.52E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU3 SS	1000	Th-230	1.27	1.12	1.27E+00	**3.3E-06**	4.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.3E-08	**3.3E-06**
EU3 SS	1000	Th-232	0.929	1.02	9.29E-01	**9.8E-06**	1.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-08	**9.9E-06**
EU3 SS	1000	U-234	2.06	1.33	2.06E+00	2.6E-08	3.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.9E-09	3.6E-08
EU3 SS	1000	U-235	0.16	0.19	1.56E-01	7.6E-08	2.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-10	7.7E-08
EU3 SS	1000	U-238	2.11	1.50	2.11E+00	2.0E-07	2.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.3E-09	2.1E-07
												Total	2.8E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.5. Risk Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA- Trespasser Youth Radiological Risk Estimates for Surface Soil

			Gross	Average									
			EPC	BKG	EPC	Pathway-Specific Risk Estimate							Risk
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
Site-wide SS	0	Ac-227	0.149	0.19	1.49E-01	1.6E-07	1.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-09	1.6E-07
Site-wide SS	0	Pa-231	0.149	0.19	1.49E-01	5.0E-08	9.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-09	5.3E-08
Site-wide SS	0	Pb-210	2.99	1.4	2.99E+00	9.3E-09	4.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-07	3.0E-07
Site-wide SS	0	Ra-226	2.99	1.4	2.99E+00	**2.2E-05**	5.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-07	**2.2E-05**
Site-wide SS	0	Ra-228	1.01	1.53	1.01E+00	**5.2E-06**	5.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-08	**5.2E-06**
Site-wide SS	0	Th-228	0.854	1.06	8.54E-01	**1.3E-06**	1.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.8E-09	**1.3E-06**
Site-wide SS	0	Th-230	1.18	1.12	1.18E+00	2.3E-08	2.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-09	3.1E-08
Site-wide SS	0	Th-232	0.832	1.02	8.32E-01	**3.4E-06**	5.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-08	**3.4E-06**
Site-wide SS	0	U-234	2.31	1.33	2.31E+00	5.2E-10	3.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E-09	1.2E-08
Site-wide SS	0	U-235	0.149	0.19	1.49E-01	7.1E-08	2.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-10	7.2E-08
Site-wide SS	0	U-238	2.38	1.50	2.38E+00	2.4E-07	3.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.7E-09	2.5E-07
												Total	3.3E-05
Site-wide SS	1000	Ac-227	0.149	0.19	1.49E-01	2.3E-21	2.2E-23	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.0E-23	2.4E-21
Site-wide SS	1000	Pa-231	0.149	0.19	1.49E-01	2.0E-07	2.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-09	2.1E-07
Site-wide SS	1000	Pb-210	2.99	1.4	2.99E+00	2.6E-22	1.3E-22	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-21	8.6E-21
Site-wide SS	1000	Ra-226	2.99	1.4	2.99E+00	**1.4E-05**	6.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-07	**1.4E-05**
Site-wide SS	1000	Ra-228	1.01	1.53	1.01E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide SS	1000	Th-228	0.854	1.06	8.54E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide SS	1000	Th-230	1.18	1.12	1.18E+00	**3.0E-06**	3.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.8E-08	**3.1E-06**
Site-wide SS	1000	Th-232	0.832	1.02	8.32E-01	**8.8E-06**	1.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-08	**8.9E-06**
Site-wide SS	1000	U-234	2.31	1.33	2.31E+00	2.9E-08	3.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.7E-09	4.0E-08
Site-wide SS	1000	U-235	0.149	0.19	1.49E-01	7.2E-08	2.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-10	7.3E-08
Site-wide SS	1000	U-238	2.38	1.50	2.38E+00	2.3E-07	3.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-09	2.4E-07
												Total	2.7E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA - Trespasser Adult Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU1 SS	0	Ac-227	0.22	0.19	3.10E-02	7.0E-04	1.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.98E-04	1.1E-03
EU1 SS	0	Pa-231	0.22	0.19	3.10E-02	7.8E-05	3.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.47E-04	2.6E-04
EU1 SS	0	Pb-210	3.54	1.40	2.14E+00	1.5E-04	4.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.72E-03	6.9E-03
EU1 SS	0	Ra-226	3.54	1.40	2.14E+00	2.7E-01	1.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.34E-03	2.7E-01
EU1 SS	0	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	0	Th-228	0.899	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	0	Th-230	1.3	1.12	1.80E-01	7.4E-06	5.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.32E-05	1.0E-04
EU1 SS	0	Th-232	0.874	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	0	U-234	2.96	1.33	1.63E+00	7.6E-06	1.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.02E-04	3.9E-04
EU1 SS	0	U-235	0.22	0.19	3.10E-02	2.7E-04	3.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.63E-06	2.8E-04
EU1 SS	0	U-238	3	1.50	1.50E+00	2.6E-03	1.5E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.77E-04	2.9E-03
												Total	**2.8E-01**
EU1 SS	1000	Ac-227	0.22	0.19	3.10E-02	1.0E-17	2.5E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.88E-18	1.6E-17
EU1 SS	1000	Pa-231	0.22	0.19	3.10E-02	7.4E-04	2.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.30E-04	1.3E-03
EU1 SS	1000	Pb-210	3.54	1.4	2.14E+00	4.2E-18	1.2E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.89E-16	1.9E-16
EU1 SS	1000	Ra-226	3.54	1.4	2.14E+00	1.7E-01	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.23E-03	1.8E-01
EU1 SS	1000	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	1000	Th-228	0.899	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	1000	Th-230	1.3	1.12	1.80E-01	7.9E-03	5.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.72E-04	8.2E-03
EU1 SS	1000	Th-232	0.874	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	1000	U-234	2.96	1.33	1.63E+00	3.5E-04	1.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.07E-04	7.4E-04
EU1 SS	1000	U-235	0.22	0.19	3.10E-02	2.7E-04	7.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.04E-05	2.9E-04
EU1 SS	1000	U-238	3	1.50	1.50E+00	2.5E-03	1.5E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.70E-04	2.8E-03
												Total	**1.9E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA - Trespasser Adult Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU2 SS	0	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Pb-210	2.36	1.4	9.60E-01	6.6E-05	1.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.01E-03	3.1E-03
EU2 SS	0	Ra-226	2.36	1.4	9.60E-01	1.2E-01	7.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.02E-04	1.2E-01
EU2 SS	0	Ra-228	0.902	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Th-228	0.778	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Th-230	1.02	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	U-234	1.39	1.33	6.00E-02	2.8E-07	6.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.44E-06	1.4E-05
EU2 SS	0	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	U-238	1.41	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**1.2E-01**
EU2 SS	1000	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Pb-210	2.36	1.4	9.60E-01	1.9E-18	5.3E-19	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.50E-17	8.7E-17
EU2 SS	1000	Ra-226	2.36	1.4	9.60E-01	7.8E-02	1.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.35E-03	8.0E-02
EU2 SS	1000	Ra-228	0.902	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Th-228	0.778	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Th-230	1.02	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	U-234	1.39	1.33	6.00E-02	1.3E-05	6.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.61E-06	2.7E-05
EU2 SS	1000	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	U-238	1.41	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**8.0E-02**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA - Trespasser Adult Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU3 SS	0	Ac-227	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Pa-231	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Pb-210	2.94	1.4	1.54E+00	1.1E-04	3.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.83E-03	5.0E-03
EU3 SS	0	Ra-226	2.94	1.4	1.54E+00	1.9E-01	1.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.66E-04	2.0E-01
EU3 SS	0	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Th-228	0.952	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Th-230	1.27	1.12	1.50E-01	6.2E-06	4.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.60E-05	8.4E-05
EU3 SS	0	Th-232	0.929	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	U-234	2.06	1.33	7.30E-01	3.4E-06	8.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.05E-05	1.8E-04
EU3 SS	0	U-235	0.16	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	U-238	2.11	1.50	6.10E-01	1.0E-03	6.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.18E-05	1.2E-03
												Total	**2.0E-01**
EU3 SS	1000	Ac-227	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Pa-231	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Pb-210	2.94	1.4	1.54E+00	3.0E-18	8.5E-19	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.36E-16	1.4E-16
EU3 SS	1000	Ra-226	2.94	1.4	1.54E+00	1.3E-01	2.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.77E-03	1.3E-01
EU3 SS	1000	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Th-228	0.952	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Th-230	1.27	1.12	1.50E-01	6.6E-03	4.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.26E-04	6.8E-03
EU3 SS	1000	Th-232	0.929	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	U-234	2.06	1.33	7.30E-01	1.6E-04	8.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.26E-05	3.3E-04
EU3 SS	1000	U-235	0.16	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	U-238	2.11	1.50	6.10E-01	1.0E-03	5.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.92E-05	1.1E-03
												Total	**1.4E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill re-BRA - Trespasser Adult Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
Site-wide S	0	Ac-227	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	0	Pa-231	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	0	Pb-210	2.99	1.4	1.59E+00	1.1E-04	3.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.99E-03	5.1E-03
Site-wide S	0	Ra-226	2.99	1.4	1.59E+00	2.0E-01	1.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.98E-04	2.0E-01
Site-wide S	0	Ra-228	1.01	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	0	Th-228	0.854	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	0	Th-230	1.18	1.12	6.00E-02	2.5E-06	1.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.44E-05	3.4E-05
Site-wide S	0	Th-232	0.832	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	0	U-234	2.31	1.33	9.80E-01	4.6E-06	1.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.22E-04	2.4E-04
Site-wide S	0	U-235	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	0	U-238	2.38	1.50	8.80E-01	1.5E-03	8.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.04E-04	1.7E-03
												Total	**2.1E-01**
Site-wide S	1000	Ac-227	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	1000	Pa-231	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	1000	Pb-210	2.99	1.4	1.59E+00	3.1E-18	8.7E-19	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.41E-16	1.4E-16
Site-wide S	1000	Ra-226	2.99	1.4	1.59E+00	1.3E-01	2.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.89E-03	1.3E-01
Site-wide S	1000	Ra-228	1.01	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	1000	Th-228	0.854	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	1000	Th-230	1.18	1.12	6.00E-02	2.6E-03	1.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.05E-05	2.7E-03
Site-wide S	1000	Th-232	0.832	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	1000	U-234	2.31	1.33	9.80E-01	2.1E-04	1.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.24E-04	4.4E-04
Site-wide S	1000	U-235	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide S	1000	U-238	2.38	1.50	8.80E-01	1.5E-03	8.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.98E-05	1.6E-03
												Total	**1.4E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill - Trespasser Youth Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU1 SS	0	Ac-227	0.22	0.19	3.10E-02	4.5E-03	9.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.27E-03	6.7E-03
EU1 SS	0	Pa-231	0.22	0.19	3.10E-02	5.0E-04	2.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.44E-04	1.7E-03
EU1 SS	0	Pb-210	3.54	1.40	2.14E+00	9.5E-04	2.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.31E-02	4.4E-02
EU1 SS	0	Ra-226	3.54	1.40	2.14E+00	1.7E+00	9.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.62E-03	1.7E+00
EU1 SS	0	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	0	Th-228	0.899	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	0	Th-230	1.3	1.12	1.80E-01	4.8E-05	2.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.77E-04	6.1E-04
EU1 SS	0	Th-232	0.874	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	0	U-234	2.96	1.33	1.63E+00	4.9E-05	1.0E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.30E-03	2.4E-03
EU1 SS	0	U-235	0.22	0.19	3.10E-02	1.7E-03	1.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.33E-05	1.8E-03
EU1 SS	0	U-238	3	1.50	1.50E+00	1.7E-02	8.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.13E-03	1.9E-02
												Total	**1.8E+00**
EU1 SS	1000	Ac-227	0.22	0.19	3.10E-02	6.5E-17	1.4E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.85E-17	9.8E-17
EU1 SS	1000	Pa-231	0.22	0.19	3.10E-02	4.8E-03	1.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.12E-03	8.0E-03
EU1 SS	1000	Pb-210	3.54	1.4	2.14E+00	2.7E-17	6.7E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.22E-15	1.2E-15
EU1 SS	1000	Ra-226	3.54	1.4	2.14E+00	1.1E+00	2.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.36E-02	1.2E+00
EU1 SS	1000	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	1000	Th-228	0.899	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	1000	Th-230	1.3	1.12	1.80E-01	5.1E-02	2.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.74E-03	5.3E-02
EU1 SS	1000	Th-232	0.874	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1 SS	1000	U-234	2.96	1.33	1.63E+00	2.2E-03	1.0E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.33E-03	4.6E-03
EU1 SS	1000	U-235	0.22	0.19	3.10E-02	1.8E-03	4.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.65E-05	1.9E-03
EU1 SS	1000	U-238	3	1.50	1.50E+00	1.6E-02	8.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.09E-03	1.8E-02
												Total	**1.2E+00**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill - Trespasser Youth Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU2 SS	0	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Pb-210	2.36	1.4	9.60E-01	4.3E-04	1.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.93E-02	2.0E-02
EU2 SS	0	Ra-226	2.36	1.4	9.60E-01	7.8E-01	4.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.86E-03	7.8E-01
EU2 SS	0	Ra-228	0.902	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Th-228	0.778	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Th-230	1.02	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	U-234	1.39	1.33	6.00E-02	1.8E-06	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.77E-05	8.8E-05
EU2 SS	0	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	0	U-238	1.41	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**8.0E-01**
EU2 SS	1000	Ac-227	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Pa-231	0	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Pb-210	2.36	1.4	9.60E-01	1.2E-17	3.0E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.45E-16	5.6E-16
EU2 SS	1000	Ra-226	2.36	1.4	9.60E-01	5.0E-01	9.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.51E-02	5.2E-01
EU2 SS	1000	Ra-228	0.902	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Th-228	0.778	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Th-230	1.02	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	U-234	1.39	1.33	6.00E-02	8.2E-05	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.88E-05	1.7E-04
EU2 SS	1000	U-235	0.00	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU2 SS	1000	U-238	1.41	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**5.2E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill - Trespasser Youth Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU3 SS	0	Ac-227	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Pa-231	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Pb-210	2.94	1.4	1.54E+00	6.8E-04	1.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.10E-02	3.2E-02
EU3 SS	0	Ra-226	2.94	1.4	1.54E+00	1.2E+00	6.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.20E-03	1.3E+00
EU3 SS	0	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Th-228	0.952	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	Th-230	1.27	1.12	1.50E-01	4.0E-05	2.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.31E-04	5.1E-04
EU3 SS	0	Th-232	0.929	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	U-234	2.06	1.33	7.30E-01	2.2E-05	4.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.81E-04	1.1E-03
EU3 SS	0	U-235	0.16	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	0	U-238	2.11	1.50	6.10E-01	6.7E-03	3.5E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.61E-04	7.5E-03
												Total	**1.3E+00**
EU3 SS	1000	Ac-227	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Pa-231	0.156	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Pb-210	2.94	1.4	1.54E+00	1.9E-17	4.8E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.75E-16	9.0E-16
EU3 SS	1000	Ra-226	2.94	1.4	1.54E+00	8.0E-01	1.5E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.42E-02	8.3E-01
EU3 SS	1000	Ra-228	1.08	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Th-228	0.952	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	Th-230	1.27	1.12	1.50E-01	4.2E-02	2.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.45E-03	4.4E-02
EU3 SS	1000	Th-232	0.929	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	U-234	2.06	1.33	7.30E-01	1.0E-03	4.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.94E-04	2.1E-03
EU3 SS	1000	U-235	0.16	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU3 SS	1000	U-238	2.11	1.50	6.10E-01	6.5E-03	3.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.44E-04	7.2E-03
												Total	**8.8E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.6. Dose Assessment Results for 0 - 2 ft Soil

Tonawanda Landfill - Trespasser Youth Radiological Dose Estimates for Surface Soil													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
Site-wide	0	Ac-227	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Pa-231	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Pb-210	2.99	1.4	1.59E+00	7.1E-04	1.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.20E-02	3.3E-02
Site-wide	0	Ra-226	2.99	1.4	1.59E+00	1.3E+00	6.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.40E-03	1.3E+00
Site-wide	0	Ra-228	1.01	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Th-228	0.854	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Th-230	1.18	1.12	6.00E-02	1.6E-05	9.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.25E-05	2.0E-04
Site-wide	0	Th-232	0.832	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	U-234	2.31	1.33	9.80E-01	2.9E-05	6.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.79E-04	1.4E-03
Site-wide	0	U-235	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	U-238	2.38	1.50	8.80E-01	9.7E-03	5.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.65E-04	1.1E-02
												Total	**1.3E+00**
Site-wide	1000	Ac-227	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	1000	Pa-231	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	1000	Pb-210	2.99	1.4	1.59E+00	2.0E-17	5.0E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.03E-16	9.3E-16
Site-wide	1000	Ra-226	2.99	1.4	1.59E+00	8.3E-01	1.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.49E-02	8.5E-01
Site-wide	1000	Ra-228	1.01	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	1000	Th-228	0.854	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	1000	Th-230	1.18	1.12	6.00E-02	1.7E-02	9.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.81E-04	1.8E-02
Site-wide	1000	Th-232	0.832	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	1000	U-234	2.31	1.33	9.80E-01	1.3E-03	6.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.97E-04	2.8E-03
Site-wide	1000	U-235	0.149	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	1000	U-238	2.38	1.50	8.80E-01	9.3E-03	4.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.40E-04	1.0E-02
												Total	**8.9E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F-7 Incremental Lifetime Cancer Risk Assessment Results of Incidental Ingestion of Site Water

			Gross	Average			
			EPC	BKG	EPC	Trespasser	Construction
EU	Radionuclide	CASRN	(pCi/L)	(pCi/L)	(pCi/L)	Youth	Worker
site wide water	Ac-227+D	014952-40-0(+D)	0	0	0	0.0E+00	0.0E+00
site wide water	Pa-231	014331-85-2	0	0	0	0.0E+00	0.0E+00
site wide water	Pb-210+D	014255-04-0(+D)	0.0	0	0.00E+00	0.0E+00	0.0E+00
site wide water	Ra-226+D	013982-63-3(+D)	3.8	0	3.81E+00	3.7E-08	2.9E-09
site wide water	Ra-228+D	015262-20-1(+D)	1.0	0	9.85E-01	2.6E-08	2.0E-09
site wide water	Th-228+D	0147274-82-9(+D)	2.8	0	2.76E+00	2.1E-08	1.7E-09
site wide water	Th-230	014269-63-7	13.7	0	1.37E+01	3.1E-08	2.5E-09
site wide water	Th-232	007440-29-1	2.4	0	2.41E+00	6.1E-09	4.9E-10
site wide water	U-234	013966-29-5	43.4	0	4.34E+01	7.7E-08	6.1E-09
site wide water	U-235+D	015117-96-1(+D)	4.1	0	4.14E+00	7.4E-09	5.9E-10
site wide water	U-238+D	007440-61-1(+D)	41.5	0	4.15E+01	9.0E-08	7.2E-09
					Total	**3.E-07**	**2.E-08**

(+D) indicates consideration of short lived decay products.
EPC = Exposure Point Concentration
BKG = Background

BKG = background
EPC = exposure point concentration
EU = exposure unit
Net EPC = Gross EPC - BKG
Total Risk = Σ Radionuclide-Specific Risk Estimates

TableF-8 Annual Radiological Doses from Incidental Ingestion of Site Water (mrem/year)

			Gross	Average			
			EPC	BKG	EPC	Trespasser	Construction
EU	Radionuclide	CASRN	(pCi/L)	(pCi/L)	(pCi/L)	Youth	Worker
site wide water	Ac-227+D	014952-40-0(+D)	0	0	0	0.0E+00	0.0E+00
site wide water	Pa-231	014331-85-2	0	0	0	0.0E+00	0.0E+00
site wide water	Pb-210+D	014255-04-0(+D)	0.0	0	0.00E+00	0.0E+00	0.0E+00
site wide water	Ra-226+D	013982-63-3(+D)	3.8	0	3.81E+00	1.1E-02	1.0E-02
site wide water	Ra-228+D	015262-20-1(+D)	1.0	0	9.85E-01	3.0E-03	2.8E-03
site wide water	Th-228+D	0147274-82-9(+D)	2.8	0	2.76E+00	4.6E-03	4.5E-03
site wide water	Th-230	014269-63-7	13.7	0	1.37E+01	1.6E-02	1.5E-02
site wide water	Th-232	007440-29-1	2.4	0	2.41E+00	1.4E-02	1.3E-02
site wide water	U-234	013966-29-5	43.4	0	4.34E+01	2.6E-02	2.5E-02
site wide water	U-235+D	015117-96-1(+D)	4.1	0	4.14E+00	2.3E-03	2.2E-03
site wide water	U-238+D	007440-61-1(+D)	41.5	0	4.15E+01	2.3E-02	2.2E-02
					Total	**9.8E-02**	**9.5E-02**

(+D) indicates consideration of short lived decay products.
EPC = Exposure Point Concentration
BKG = Background

BKG = background
EPC = exposure point concentration
EU = exposure unit
Net EPC = Gross EPC - BKG
Total Risk = Σ Radionuclide-Specific Risk Estimates

Table F-9 Hazards (chemical hazard quotients) from Incidental Ingestion of Site Water

			Gross		
			EPC	Trespasser	Construction
EU	Radionuclide	CASRN	ug/L	Youth	Worker
site wide water	Total U		123.9	5.3E-03	3.2E-03

EPC = Exposure Point Concentration

BKG = background
EPC = exposure point concentration
EU = exposure unit
Net EPC = Gross EPC - BKG
Total Risk = Σ Radionuclide-Specific Risk Estimates

Table F.10. RESRAD Generated Dose-to-Source Ratios (DSRs) for Exposure to Soil, Future Baseline

Receptor	Year	Radionuclide	DSR: Water Independent Pathways (mrem/yr/pCi/g)							**DSR**
			Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Trespasser Adult	0	Ac-227	1.06E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-06
Trespasser Adult	0	Pa-231	7.97E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.97E-08
Trespasser Adult	0	Pb-210	4.12E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.12E-10
Trespasser Adult	0	Ra-226	1.27E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-04
Trespasser Adult	0	Ra-228	8.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.42E-05
Trespasser Adult	0	Th-228	2.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-04
Trespasser Adult	0	Th-230	2.76E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-08
Trespasser Adult	0	Th-232	4.22E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.22E-06
Trespasser Adult	0	U-234	1.75E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-13
Trespasser Adult	0	U-235	3.29E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-08
Trespasser Adult	0	U-238	4.28E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-07
Trespasser Adult	600	Ac-227	1.16E-10	2.91E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.28E-11	1.78E-10
Trespasser Adult	600	Pa-231	2.44E-02	6.62E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-02	4.18E-02
Trespasser Adult	600	Pb-210	5.09E-13	1.49E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-11	2.47E-11
Trespasser Adult	600	Ra-226	9.74E-02	2.09E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E-03	1.00E-01
Trespasser Adult	600	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Adult	600	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Adult	600	Th-230	2.88E-02	2.80E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-03	3.01E-02
Trespasser Adult	600	Th-232	1.82E-01	1.68E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-03	1.86E-01
Trespasser Adult	600	U-234	8.45E-05	1.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-04	3.19E-04
Trespasser Adult	600	U-235	8.71E-03	1.82E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-04	9.14E-03
Trespasser Youth	600	U-238	1.68E-03	9.81E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-04	1.89E-03
Trespasser Youth	0	Ac-227	6.78E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.78E-06
Trespasser Youth	0	Pa-231	5.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-07
Trespasser Youth	0	Pb-210	2.64E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-09
Trespasser Youth	0	Ra-226	8.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.16E-04
Trespasser Youth	0	Ra-228	5.40E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.40E-04
Trespasser Youth	0	Th-228	1.70E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03
Trespasser Youth	0	Th-230	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-07
Trespasser Youth	0	Th-232	2.71E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-05
Trespasser Youth	0	U-234	1.13E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-12
Trespasser Youth	0	U-235	2.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-07
Trespasser Youth	0	U-238	2.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-06
Trespasser Youth	600	Ac-227	7.46E-10	1.65E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-10	1.12E-09

Table F.10. RESRAD Generated Dose-to-Source Ratios (DSRs) for Exposure to Soil, Future Baseline

Receptor	Year	Radionuclide	DSR: Water Independent Pathways (mrem/yr/pCi/g)							**DSR**
			Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Trespasser Youth	600	Pa-231	1.56E-01	3.76E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.92E-02	2.63E-01
Trespasser Youth	600	Pb-210	3.27E-12	8.48E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-10	1.58E-10
Trespasser Youth	600	Ra-226	6.25E-01	1.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-02	6.44E-01
Trespasser Youth	600	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	600	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	600	Th-230	1.85E-01	1.59E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.74E-03	1.93E-01
Trespasser Youth	600	Th-232	1.17E+00	9.55E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-02	1.19E+00
Trespasser Youth	600	U-234	5.42E-04	6.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-04	1.97E-03
Trespasser Youth	600	U-235	5.59E-02	1.04E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-03	5.85E-02
Trespasser Youth	600	U-238	1.08E-02	5.58E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.35E-04	1.21E-02

Table F.11. RESRAD Generated Risk-to-Source Ratios (RSRs) for Exposure to Soil, Future Baseline

			RSR: Water Independent Pathways (risk/lifetime per pCi/g)							**RSR**
Receptor	Year	Radionuc	Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Trespasser Adult	0	Ac-227	1.87E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E-11
Trespasser Adult	0	Pa-231	1.32E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.32E-11
Trespasser Adult	0	Pb-210	7.74E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.74E-15
Trespasser Adult	0	Ra-226	3.42E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-09
Trespasser Adult	0	Ra-228	2.36E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-09
Trespasser Adult	0	Th-228	6.83E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.83E-10
Trespasser Adult	0	Th-230	2.35E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-11
Trespasser Adult	0	Th-232	6.34E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.34E-09
Trespasser Adult	0	U-234	2.18E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-15
Trespasser Adult	0	U-235	9.77E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.77E-13
Trespasser Adult	0	U-238	1.20E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-11
Trespasser Adult	600	Ac-227	1.61E-15	1.75E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.75E-17	1.65E-15
Trespasser Adult	600	Pa-231	5.33E-07	7.20E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-08	5.51E-07
Trespasser Adult	600	Pb-210	6.99E-18	3.79E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-16	2.29E-16
Trespasser Adult	600	Ra-226	2.19E-06	1.16E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E-08	2.24E-06
Trespasser Adult	600	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Adult	600	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Adult	600	Th-230	6.67E-07	1.20E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-08	6.81E-07
Trespasser Adult	600	Th-232	4.14E-06	5.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-08	4.17E-06
Trespasser Adult	600	U-234	2.00E-09	6.99E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-09	3.96E-09
Trespasser Adult	600	U-235	1.88E-07	7.15E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-09	1.90E-07
Trespasser Youth	600	U-238	3.76E-08	5.91E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-09	3.98E-08
Trespasser Youth	0	Ac-227	5.52E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.52E-11
Trespasser Youth	0	Pa-231	1.55E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-11
Trespasser Youth	0	Pb-210	2.24E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-14
Trespasser Youth	0	Ra-226	7.93E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.93E-09
Trespasser Youth	0	Ra-228	1.01E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-08
Trespasser Youth	0	Th-228	4.32E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.32E-09
Trespasser Youth	0	Th-230	2.11E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-11
Trespasser Youth	0	Th-232	7.57E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.57E-09
Trespasser Youth	0	U-234	7.74E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.74E-16
Trespasser Youth	0	U-235	2.05E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-12
Trespasser Youth	0	U-238	2.71E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-11
Trespasser Youth	600	Ac-227	5.32E-15	5.13E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.12E-17	5.46E-15
Trespasser Youth	600	Pa-231	1.37E-06	1.64E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.89E-08	1.41E-06
Trespasser Youth	600	Pb-210	2.30E-17	1.11E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.18E-16	7.53E-16
Trespasser Youth	600	Ra-226	5.65E-06	2.65E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-07	5.76E-06

Table F.11. RESRAD Generated Risk-to-Source Ratios (RSRs) for Exposure to Soil, Future Baseline

			RSR: Water Independent Pathways (risk/lifetime per pCi/g)							**RSR**
Receptor	Year	Radionuc	Gamma	Inhalation	Radon	Plant	Meat	Milk	Soil	**Total**
Trespasser Youth	600	Ra-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	600	Th-228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trespasser Youth	600	Th-230	1.69E-06	2.72E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-08	1.73E-06
Trespasser Youth	600	Th-232	1.06E-05	1.34E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-08	1.07E-05
Trespasser Youth	600	U-234	5.01E-09	1.59E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-09	9.83E-09
Trespasser Youth	600	U-235	4.83E-07	1.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E-09	4.88E-07
Trespasser Youth	600	U-238	9.66E-08	1.35E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.98E-09	1.02E-07

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Risk Estimates

EU	CASRN	Year	Nuclide	EPC (pCi/g)	Pathway-Specific Risk Estimate							Risk
					Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU1	010045-97-3	0	Ac-227	2.66E+00	5.0E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-11
EU1	013994-20-2	0	Pa-231	2.66E+00	3.5E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-11
EU1	014255-04-0(+I	0	Pb-210	5.12E+01	4.0E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.0E-13
EU1	013982-63-3(+I	0	Ra-226	5.12E+01	1.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-07
EU1	015262-20-1(+I	0	Ra-228	1.24E+00	2.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-09
EU1	0147274-82-9(+	0	Th-228	1.09E+00	7.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E-10
EU1	014269-63-7	0	Th-230	2.36E+01	5.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-10
EU1	07440-29-1	0	Th-232	1.16E+00	7.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.4E-09
EU1	013966-29-5	0	U-234	3.45E+01	7.5E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.5E-14
EU1	015117-96-1(+I	0	U-235	2.66E+00	2.6E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-12
EU1	007440-61-1(+I	0	U-238	3.45E+01	4.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-10
											Total	1.9E-07
EU1	010045-97-3	600	Ac-227	2.66E+00	4.3E-15	4.7E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.3E-17	4.4E-15
EU1	013994-20-2	600	Pa-231	2.66E+00	**1.4E-06**	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-08	**1.5E-06**
EU1	014255-04-0(+I	600	Pb-210	5.12E+01	3.6E-16	1.9E-16	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-14	1.2E-14
EU1	013982-63-3(+I	600	Ra-226	5.12E+01	**1.1E-04**	5.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**2.0E-06**	**1.1E-04**
EU1	015262-20-1(+I	600	Ra-228	1.24E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1	0147274-82-9(+	600	Th-228	1.09E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1	014269-63-7	600	Th-230	2.36E+01	**1.6E-05**	2.8E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.1E-07	**1.6E-05**
EU1	07440-29-1	600	Th-232	1.16E+00	**4.8E-06**	6.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-08	**4.8E-06**
EU1	013966-29-5	600	U-234	3.45E+01	6.9E-08	2.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-08	1.4E-07
EU1	015117-96-1(+I	600	U-235	2.66E+00	5.0E-07	1.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.7E-09	5.1E-07
EU1	007440-61-1(+I	600	U-238	3.45E+01	**1.3E-06**	2.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-08	**1.4E-06**
											Total	**1.4E-04**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Risk Estimates

EU	CASRN	Year	Nuclide	EPC (pCi/g)	Pathway-Specific Risk Estimate							Risk
					Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU 2	010045-97-3	0	Ac-227	1.29E-01	2.4E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-12
EU 2	013994-20-2	0	Pa-231	1.29E-01	1.7E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-12
EU 2	014255-04-0(+I	0	Pb-210	2.14E+00	1.7E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-14
EU 2	013982-63-3(+I	0	Ra-226	2.14E+00	7.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.3E-09
EU 2	015262-20-1(+I	0	Ra-228	9.15E-01	2.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-09
EU 2	0147274-82-9(+	0	Th-228	8.01E-01	5.5E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-10
EU 2	014269-63-7	0	Th-230	9.95E-01	2.3E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-11
EU 2	07440-29-1	0	Th-232	7.79E-01	4.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-09
EU 2	013966-29-5	0	U-234	1.32E+00	2.9E-15	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-15
EU 2	015117-96-1(+I	0	U-235	1.29E-01	1.3E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-13
EU 2	007440-61-1(+I	0	U-238	1.33E+00	1.6E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-11
											Total	1.5E-08
EU 2	010045-97-3	600	Ac-227	1.29E-01	2.1E-16	2.3E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-18	2.1E-16
EU 2	013994-20-2	600	Pa-231	1.29E-01	6.9E-08	9.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-09	7.1E-08
EU 2	014255-04-0(+I	600	Pb-210	2.14E+00	1.5E-17	8.1E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.7E-16	4.9E-16
EU 2	013982-63-3(+I	600	Ra-226	2.14E+00	**4.7E-06**	2.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-08	**4.8E-06**
EU 2	015262-20-1(+I	600	Ra-228	9.15E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 2	0147274-82-9(+	600	Th-228	8.01E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 2	014269-63-7	600	Th-230	9.95E-01	6.6E-07	1.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-08	6.8E-07
EU 2	07440-29-1	600	Th-232	7.79E-01	**3.2E-06**	4.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-08	**3.3E-06**
EU 2	013966-29-5	600	U-234	1.32E+00	2.6E-09	9.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-09	5.2E-09
EU 2	015117-96-1(+I	600	U-235	1.29E-01	2.4E-08	9.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-10	2.5E-08
EU 2	007440-61-1(+I	600	U-238	1.33E+00	5.0E-08	7.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-09	5.3E-08
											Total	8.9E-06

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Risk Estimates

EU	CASRN	Year	Nuclide	EPC (pCi/g)	Pathway-Specific Risk Estimate							Risk
					Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
EU 3	010045-97-3	0	Ac-227	3.64E-01	6.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-12
EU 3	013994-20-2	0	Pa-231	3.64E-01	4.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-12
EU 3	014255-04-0(+I	0	Pb-210	2.45E+00	1.9E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-14
EU 3	013982-63-3(+I	0	Ra-226	2.45E+00	8.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.4E-09
EU 3	015262-20-1(+I	0	Ra-228	1.04E+00	2.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-09
EU 3	0147274-82-9(+	0	Th-228	8.94E-01	6.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.1E-10
EU 3	014269-63-7	0	Th-230	1.13E+00	2.7E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-11
EU 3	07440-29-1	0	Th-232	8.68E-01	5.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-09
EU 3	013966-29-5	0	U-234	1.55E+00	3.4E-15	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-15
EU 3	015117-96-1(+I	0	U-235	3.64E-01	3.6E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-13
EU 3	007440-61-1(+I	0	U-238	1.57E+00	1.9E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-11
											Total	1.7E-08
EU 3	010045-97-3	600	Ac-227	3.64E-01	5.8E-16	6.4E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-17	6.0E-16
EU 3	013994-20-2	600	Pa-231	3.64E-01	1.9E-07	2.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-09	2.0E-07
EU 3	014255-04-0(+I	600	Pb-210	2.45E+00	1.7E-17	9.3E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-16	5.6E-16
EU 3	013982-63-3(+I	600	Ra-226	2.45E+00	**5.4E-06**	2.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-08	**5.5E-06**
EU 3	015262-20-1(+I	600	Ra-228	1.04E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 3	0147274-82-9(+	600	Th-228	8.94E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 3	014269-63-7	600	Th-230	1.13E+00	7.5E-07	1.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-08	7.7E-07
EU 3	07440-29-1	600	Th-232	8.68E-01	**3.6E-06**	5.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-08	**3.6E-06**
EU 3	013966-29-5	600	U-234	1.55E+00	3.1E-09	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-09	6.1E-09
EU 3	015117-96-1(+I	600	U-235	3.64E-01	6.8E-08	2.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.1E-10	6.9E-08
EU 3	007440-61-1(+I	600	U-238	1.57E+00	5.9E-08	9.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-09	6.2E-08
											Total	1.0E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Risk Estimates

EU	CASRN	Year	Nuclide	EPC (pCi/g)	Pathway-Specific Risk Estimate							Risk
					Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
Site-wide	010045-97-3	0	Ac-227	1.59E+00	3.0E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-11
Site-wide	013994-20-2	0	Pa-231	1.59E+00	2.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-11
Site-wide	014255-04-0(+I	0	Pb-210	2.18E+01	1.7E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-13
Site-wide	013982-63-3(+I	0	Ra-226	2.18E+01	7.5E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.5E-08
Site-wide	015262-20-1(+I	0	Ra-228	1.10E+00	2.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-09
Site-wide	0147274-82-9(+	0	Th-228	9.60E-01	6.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.6E-10
Site-wide	014269-63-7	0	Th-230	1.43E+01	3.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-10
Site-wide	07440-29-1	0	Th-232	9.41E-01	6.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.0E-09
Site-wide	013966-29-5	0	U-234	2.07E+01	4.5E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-14
Site-wide	015117-96-1(+I	0	U-235	1.59E+00	1.6E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-12
Site-wide	007440-61-1(+I	0	U-238	2.07E+01	2.5E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-10
											Total	8.4E-08
Site-wide	010045-97-3	600	Ac-227	1.59E+00	2.6E-15	2.8E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-17	2.6E-15
Site-wide	013994-20-2	600	Pa-231	1.59E+00	8.5E-07	1.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-08	8.8E-07
Site-wide	014255-04-0(+I	600	Pb-210	2.18E+01	1.5E-16	8.3E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-15	5.0E-15
Site-wide	013982-63-3(+I	600	Ra-226	2.18E+01	**4.8E-05**	2.5E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.7E-07	**4.9E-05**
Site-wide	015262-20-1(+I	600	Ra-228	1.10E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide	0147274-82-9(+	600	Th-228	9.60E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide	014269-63-7	600	Th-230	1.43E+01	**9.5E-06**	1.7E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-07	**9.7E-06**
Site-wide	07440-29-1	600	Th-232	9.41E-01	**3.9E-06**	5.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-08	**3.9E-06**
Site-wide	013966-29-5	600	U-234	2.07E+01	4.1E-08	1.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-08	8.2E-08
Site-wide	015117-96-1(+I	600	U-235	1.59E+00	3.0E-07	1.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-09	3.0E-07
Site-wide	007440-61-1(+I	600	U-238	2.07E+01	7.8E-07	1.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-08	8.2E-07
											Total	6.4E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Risk Estimates

EU	Year	Nuclide	Gross EPC (pCi/	EPC (pCi/g)	Pathway-Specific Risk Estimate Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Risk Total
EU1	0	Ac-227	3	2.66E+00	1.5E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-10
EU1	0	Pa-231	3	2.66E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-11
EU1	0	Pb-210	51	5.12E+01	1.1E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-12
EU1	0	Ra-226	51	5.12E+01	4.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-07
EU1	0	Ra-228	1	1.24E+00	1.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-08
EU1	0	Th-228	1	1.09E+00	4.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.7E-09
EU1	0	Th-230	24	2.36E+01	5.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-10
EU1	0	Th-232	1	1.16E+00	8.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.8E-09
EU1	0	U-234	35	3.45E+01	2.7E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-14
EU1	0	U-235	3	2.66E+00	5.4E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-12
EU1	0	U-238	35	3.45E+01	9.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.3E-10
											Total	4.3E-07
EU1	600	Ac-227	3	2.66E+00	1.4E-14	1.4E-16	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-16	1.5E-14
EU1	600	Pa-231	3	2.66E+00	**3.6E-06**	4.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.7E-08	**3.8E-06**
EU1	600	Pb-210	51	5.12E+01	1.2E-15	5.7E-16	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.7E-14	3.9E-14
EU1	600	Ra-226	51	5.12E+01	**2.9E-04**	1.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**5.3E-06**	**2.9E-04**
EU1	600	Ra-228	1	1.24E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1	600	Th-228	1	1.09E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU1	600	Th-230	24	2.36E+01	**4.0E-05**	6.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.8E-07	**4.1E-05**
EU1	600	Th-232	1	1.16E+00	**1.2E-05**	1.5E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.7E-08	**1.2E-05**
EU1	600	U-234	35	3.45E+01	1.7E-07	5.5E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-07	3.4E-07
EU1	600	U-235	3	2.66E+00	**1.3E-06**	4.3E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-09	**1.3E-06**
EU1	600	U-238	35	3.45E+01	**3.3E-06**	4.6E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-07	**3.5E-06**
											Total	**3.6E-04**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Risk Estimates

EU	Year	Nuclide	Gross EPC (pCi/	EPC (pCi/g)	Pathway-Specific Risk Estimate Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Risk Total
EU 2	0	Ac-227	0	1.29E-01	7.1E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-12
EU 2	0	Pa-231	0	1.29E-01	2.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-12
EU 2	0	Pb-210	2	2.14E+00	4.8E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-14
EU 2	0	Ra-226	2	2.14E+00	1.7E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-08
EU 2	0	Ra-228	1	9.15E-01	9.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-09
EU 2	0	Th-228	1	8.01E-01	3.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-09
EU 2	0	Th-230	1	9.95E-01	2.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-11
EU 2	0	Th-232	1	7.79E-01	5.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.9E-09
EU 2	0	U-234	1	1.32E+00	1.0E-15	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-15
EU 2	0	U-235	##	1.29E-01	2.6E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-13
EU 2	0	U-238	1	1.33E+00	3.6E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-11
											Total	3.6E-08
EU 2	600	Ac-227	0	1.29E-01	6.9E-16	6.6E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-17	7.0E-16
EU 2	600	Pa-231	0	1.29E-01	1.8E-07	2.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.7E-09	1.8E-07
EU 2	600	Pb-210	2	2.14E+00	4.9E-17	2.4E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-15	1.6E-15
EU 2	600	Ra-226	2	2.14E+00	**1.2E-05**	5.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-07	**1.2E-05**
EU 2	600	Ra-228	1	9.15E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 2	600	Th-228	1	8.01E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 2	600	Th-230	1	9.95E-01	**1.7E-06**	2.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-08	**1.7E-06**
EU 2	600	Th-232	1	7.79E-01	**8.3E-06**	1.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.2E-08	**8.3E-06**
EU 2	600	U-234	1	1.32E+00	6.6E-09	2.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-09	1.3E-08
EU 2	600	U-235	##	1.29E-01	6.2E-08	2.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-10	6.3E-08
EU 2	600	U-238	1	1.33E+00	1.3E-07	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.3E-09	1.4E-07
											Total	2.3E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Risk Estimates

EU	Year	Nuclide	Gross EPC (pCi/	EPC (pCi/g)	Pathway-Specific Risk Estimate Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Risk Total
EU 3	0	Ac-227	0	3.64E-01	2.0E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-11
EU 3	0	Pa-231	0	3.64E-01	5.6E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-12
EU 3	0	Pb-210	2	2.45E+00	5.5E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-14
EU 3	0	Ra-226	2	2.45E+00	1.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-08
EU 3	0	Ra-228	1	1.04E+00	1.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-08
EU 3	0	Th-228	1	8.94E-01	3.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.9E-09
EU 3	0	Th-230	1	1.13E+00	2.4E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-11
EU 3	0	Th-232	1	8.68E-01	6.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.6E-09
EU 3	0	U-234	2	1.55E+00	1.2E-15	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-15
EU 3	0	U-235	##	3.64E-01	7.5E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.5E-13
EU 3	0	U-238	2	1.57E+00	4.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-11
											Total	4.0E-08
EU 3	600	Ac-227	0	3.64E-01	1.9E-15	1.9E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-17	2.0E-15
EU 3	600	Pa-231	0	3.64E-01	5.0E-07	6.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-08	5.1E-07
EU 3	600	Pb-210	2	2.45E+00	5.6E-17	2.7E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-15	1.8E-15
EU 3	600	Ra-226	2	2.45E+00	**1.4E-05**	6.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-07	**1.4E-05**
EU 3	600	Ra-228	1	1.04E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 3	600	Th-228	1	8.94E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EU 3	600	Th-230	1	1.13E+00	**1.9E-06**	3.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-08	**2.0E-06**
EU 3	600	Th-232	1	8.68E-01	**9.2E-06**	1.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.8E-08	**9.3E-06**
EU 3	600	U-234	2	1.55E+00	7.8E-09	2.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-09	1.5E-08
EU 3	600	U-235	##	3.64E-01	1.8E-07	5.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-09	1.8E-07
EU 3	600	U-238	2	1.57E+00	1.5E-07	2.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-09	1.6E-07
											Total	2.6E-05

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table
F.12. Future Baseline Risk Assessment Results (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Risk Estimates

EU	Year	Nuclide	Gross EPC (pCi/	EPC (pCi/g)	Pathway-Specific Risk Estimate							Risk
					Gamma	Inh	Radon	Plant	Meat	Milk	Soil	Total
Site-wide	0	Ac-227	2	1.59E+00	8.8E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.8E-11
Site-wide	0	Pa-231	2	1.59E+00	2.5E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-11
Site-wide	0	Pb-210	22	2.18E+01	4.9E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.9E-13
Site-wide	0	Ra-226	22	2.18E+01	1.7E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-07
Site-wide	0	Ra-228	1	1.10E+00	1.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-08
Site-wide	0	Th-228	1	9.60E-01	4.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-09
Site-wide	0	Th-230	14	1.43E+01	3.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-10
Site-wide	0	Th-232	1	9.41E-01	7.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-09
Site-wide	0	U-234	21	2.07E+01	1.6E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-14
Site-wide	0	U-235	2	1.59E+00	3.3E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.3E-12
Site-wide	0	U-238	21	2.07E+01	5.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-10
											Total	2.0E-07
Site-wide	600	Ac-227	2	1.59E+00	8.5E-15	8.2E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-16	8.7E-15
Site-wide	600	Pa-231	2	1.59E+00	**2.2E-06**	2.6E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-08	**2.2E-06**
Site-wide	600	Pb-210	22	2.18E+01	5.0E-16	2.4E-16	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-14	1.6E-14
Site-wide	600	Ra-226	22	2.18E+01	**1.2E-04**	5.8E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**2.2E-06**	**1.3E-04**
Site-wide	600	Ra-228	1	1.10E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide	600	Th-228	1	9.60E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Site-wide	600	Th-230	14	1.43E+01	**2.4E-05**	3.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.7E-07	**2.5E-05**
Site-wide	600	Th-232	1	9.41E-01	**1.0E-05**	1.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.3E-08	**1.0E-05**
Site-wide	600	U-234	21	2.07E+01	1.0E-07	3.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.7E-08	2.0E-07
Site-wide	600	U-235	2	1.59E+00	7.7E-07	2.6E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.7E-09	7.8E-07
Site-wide	600	U-238	21	2.07E+01	**2.0E-06**	2.8E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-08	**2.1E-06**
											Total	**1.7E-04**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU1	0	Ac-227	2.66	0.19	2.47E+00	2.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.6E-06
EU1	0	Pa-231	2.66	0.19	2.47E+00	2.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.0E-07
EU1	0	Pb-210	51.2	1.40	4.98E+01	2.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.0E-08
EU1	0	Ra-226	51.2	1.40	4.98E+01	6.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	6.3E-03
EU1	0	Ra-228	1.24	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1	0	Th-228	1.09	1.06	3.00E-02	8.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	8.0E-06
EU1	0	Th-230	23.6	1.12	2.25E+01	6.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	6.2E-07
EU1	0	Th-232	1.16	1.02	1.40E-01	5.9E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	5.9E-07
EU1	0	U-234	34.5	1.33	3.32E+01	5.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	5.8E-12
EU1	0	U-235	2.66	0.19	2.47E+00	8.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	8.1E-08
EU1	0	U-238	34.5	1.50	3.30E+01	1.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.4E-05
												Total	**6.4E-03**
EU1	600	Ac-227	2.66	0.19	2.47E+00	2.9E-10	7.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.11E-11	4.4E-10
EU1	600	Pa-231	2.66	0.19	2.47E+00	6.0E-02	1.6E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.67E-02	1.0E-01
EU1	600	Pb-210	51.2	1.4	4.98E+01	2.5E-11	7.4E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.20E-09	1.2E-09
EU1	600	Ra-226	51.2	1.4	4.98E+01	4.9E+00	1.0E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.45E-01	5.0E+00
EU1	600	Ra-228	1.24	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1	600	Th-228	1.09	1.06	3.00E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1	600	Th-230	23.6	1.12	2.25E+01	6.5E-01	6.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.36E-02	6.8E-01
EU1	600	Th-232	1.16	1.02	1.40E-01	2.6E-02	2.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.02E-04	2.6E-02
EU1	600	U-234	34.5	1.33	3.32E+01	2.8E-03	3.7E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.10E-03	1.1E-02
EU1	600	U-235	2.66	0.19	2.47E+00	2.2E-02	4.5E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.09E-04	2.3E-02
EU1	600	U-238	34.5	1.50	3.30E+01	5.5E-02	3.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.78E-03	6.2E-02
												Total	**5.9E+00**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU 2	0	Ac-227	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Pa-231	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Pb-210	2.14	1.4	7.40E-01	3.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.0E-10
EU 2	0	Ra-226	2.14	1.4	7.40E-01	9.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	9.4E-05
EU 2	0	Ra-228	0.915	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Th-228	0.801	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Th-230	0.995	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	U-234	1.32	1.33	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	U-235	0.13	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	U-238	1.33	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**9.4E-05**
EU 2	600	Ac-227	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Pa-231	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Pb-210	2.14	1.4	7.40E-01	3.8E-13	1.1E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.78E-11	1.8E-11
EU 2	600	Ra-226	2.14	1.4	7.40E-01	7.2E-02	1.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.15E-03	7.4E-02
EU 2	600	Ra-228	0.915	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Th-228	0.801	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Th-230	0.995	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	U-234	1.32	1.33	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	U-235	0.13	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	U-238	1.33	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**7.4E-02**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU 3	0	Ac-227	0.364	0.19	1.75E-01	1.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.8E-07
EU 3	0	Pa-231	0.364	0.19	1.75E-01	1.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.4E-08
EU 3	0	Pb-210	2.45	1.4	1.05E+00	4.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	4.3E-10
EU 3	0	Ra-226	2.45	1.4	1.05E+00	1.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.3E-04
EU 3	0	Ra-228	1.04	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	0	Th-228	0.894	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	0	Th-230	1.13	1.12	1.00E-02	2.8E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.8E-10
EU 3	0	Th-232	0.868	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	0	U-234	1.55	1.33	2.20E-01	3.9E-14	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.9E-14
EU 3	0	U-235	0.36	0.19	1.75E-01	5.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	5.8E-09
EU 3	0	U-238	1.57	1.50	7.00E-02	3.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.0E-08
												Total	**1.3E-04**
EU 3	600	Ac-227	0.364	0.19	1.75E-01	2.0E-11	5.1E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.75E-12	3.1E-11
EU 3	600	Pa-231	0.364	0.19	1.75E-01	4.3E-03	1.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.89E-03	7.3E-03
EU 3	600	Pb-210	2.45	1.4	1.05E+00	5.3E-13	1.6E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.52E-11	2.6E-11
EU 3	600	Ra-226	2.45	1.4	1.05E+00	1.0E-01	2.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.05E-03	1.1E-01
EU 3	600	Ra-228	1.04	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	600	Th-228	0.894	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	600	Th-230	1.13	1.12	1.00E-02	2.9E-04	2.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.05E-05	3.0E-04
EU 3	600	Th-232	0.868	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	600	U-234	1.55	1.33	2.20E-01	1.9E-05	2.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.72E-05	7.0E-05
EU 3	600	U-235	0.36	0.19	1.75E-01	1.5E-03	3.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.32E-05	1.6E-03
EU 3	600	U-238	1.57	1.50	7.00E-02	1.2E-04	6.9E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.02E-06	1.3E-04
												Total	**1.1E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA- Trespasser Adult Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
Site-wide	0	Ac-227	1.59	0.19	1.40E+00	1.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.5E-06
Site-wide	0	Pa-231	1.59	0.19	1.40E+00	1.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.1E-07
Site-wide	0	Pb-210	21.8	1.4	2.04E+01	8.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	8.4E-09
Site-wide	0	Ra-226	21.8	1.4	2.04E+01	2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.6E-03
Site-wide	0	Ra-228	1.1	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Th-228	0.96	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Th-230	14.3	1.12	1.32E+01	3.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.6E-07
Site-wide	0	Th-232	0.941	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	U-234	20.7	1.33	1.94E+01	3.4E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.4E-12
Site-wide	0	U-235	1.59	0.19	1.40E+00	4.6E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	4.6E-08
Site-wide	0	U-238	20.7	1.50	1.92E+01	8.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	8.2E-06
												Total	**2.6E-03**
Site-wide	600	Ac-227	1.59	0.19	1.40E+00	1.6E-10	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.60E-11	2.5E-10
Site-wide	600	Pa-231	1.59	0.19	1.40E+00	3.4E-02	9.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.51E-02	5.9E-02
Site-wide	600	Pb-210	21.8	1.4	2.04E+01	1.0E-11	3.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.90E-10	5.0E-10
Site-wide	600	Ra-226	21.8	1.4	2.04E+01	2.0E+00	4.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.93E-02	2.0E+00
Site-wide	600	Ra-228	1.1	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	600	Th-228	0.96	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	600	Th-230	14.3	1.12	1.32E+01	3.8E-01	3.7E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.38E-02	4.0E-01
Site-wide	600	Th-232	0.941	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	600	U-234	20.7	1.33	1.94E+01	1.6E-03	2.1E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.40E-03	6.2E-03
Site-wide	600	U-235	1.59	0.19	1.40E+00	1.2E-02	2.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.45E-04	1.3E-02
Site-wide	600	U-238	20.7	1.50	1.92E+01	3.2E-02	1.9E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.20E-03	3.6E-02
												Total	**2.6E+00**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU1	0	Ac-227	2.66	0.19	2.47E+00	1.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.7E-05
EU1	0	Pa-231	2.66	0.19	2.47E+00	1.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.3E-06
EU1	0	Pb-210	51.2	1.40	4.98E+01	1.3E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.3E-07
EU1	0	Ra-226	51.2	1.40	4.98E+01	4.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	4.1E-02
EU1	0	Ra-228	1.24	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1	0	Th-228	1.09	1.06	3.00E-02	5.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	5.1E-05
EU1	0	Th-230	23.6	1.12	2.25E+01	4.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	4.0E-06
EU1	0	Th-232	1.16	1.02	1.40E-01	3.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.8E-06
EU1	0	U-234	34.5	1.33	3.32E+01	3.7E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.7E-11
EU1	0	U-235	2.66	0.19	2.47E+00	5.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	5.2E-07
EU1	0	U-238	34.5	1.50	3.30E+01	9.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	9.1E-05
												Total	**4.1E-02**
EU1	600	Ac-227	2.66	0.19	2.47E+00	1.8E-09	4.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.21E-10	2.8E-09
EU1	600	Pa-231	2.66	0.19	2.47E+00	3.9E-01	9.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.71E-01	6.5E-01
EU1	600	Pb-210	51.2	1.4	4.98E+01	1.6E-10	4.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.67E-09	7.9E-09
EU1	600	Ra-226	51.2	1.4	4.98E+01	3.1E+01	5.9E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.28E-01	3.2E+01
EU1	600	Ra-228	1.24	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1	600	Th-228	1.09	1.06	3.00E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU1	600	Th-230	23.6	1.12	2.25E+01	4.2E+00	3.6E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.51E-01	4.3E+00
EU1	600	Th-232	1.16	1.02	1.40E-01	1.6E-01	1.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.94E-03	1.7E-01
EU1	600	U-234	34.5	1.33	3.32E+01	1.8E-02	2.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.63E-02	6.5E-02
EU1	600	U-235	2.66	0.19	2.47E+00	1.4E-01	2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.91E-03	1.4E-01
EU1	600	U-238	34.5	1.50	3.30E+01	3.5E-01	1.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.43E-02	4.0E-01
												Total	**3.8E+01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU 2	0	Ac-227	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Pa-231	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Pb-210	2.14	1.4	7.40E-01	2.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.0E-09
EU 2	0	Ra-226	2.14	1.4	7.40E-01	6.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	6.0E-04
EU 2	0	Ra-228	0.915	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Th-228	0.801	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Th-230	0.995	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	U-234	1.32	1.33	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	U-235	0.13	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	0	U-238	1.33	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**6.0E-04**
EU 2	600	Ac-227	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Pa-231	0.129	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Pb-210	2.14	1.4	7.40E-01	2.4E-12	6.3E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.14E-10	1.2E-10
EU 2	600	Ra-226	2.14	1.4	7.40E-01	4.6E-01	8.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.38E-02	4.8E-01
EU 2	600	Ra-228	0.915	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Th-228	0.801	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Th-230	0.995	1.12	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	Th-232	0.779	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	U-234	1.32	1.33	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	U-235	0.13	0.19	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 2	600	U-238	1.33	1.50	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
												Total	**4.8E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
EU 3	0	Ac-227	0.364	0.19	1.75E-01	1.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.2E-06
EU 3	0	Pa-231	0.364	0.19	1.75E-01	8.9E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	8.9E-08
EU 3	0	Pb-210	2.45	1.4	1.05E+00	2.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.8E-09
EU 3	0	Ra-226	2.45	1.4	1.05E+00	8.6E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	8.6E-04
EU 3	0	Ra-228	1.04	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	0	Th-228	0.894	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	0	Th-230	1.13	1.12	1.00E-02	1.8E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.8E-09
EU 3	0	Th-232	0.868	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	0	U-234	1.55	1.33	2.20E-01	2.5E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.5E-13
EU 3	0	U-235	0.36	0.19	1.75E-01	3.7E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.7E-08
EU 3	0	U-238	1.57	1.50	7.00E-02	1.9E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.9E-07
												Total	**8.6E-04**
EU 3	600	Ac-227	0.364	0.19	1.75E-01	1.3E-10	2.9E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.69E-11	2.0E-10
EU 3	600	Pa-231	0.364	0.19	1.75E-01	2.7E-02	6.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.21E-02	4.6E-02
EU 3	600	Pb-210	2.45	1.4	1.05E+00	3.4E-12	8.9E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.62E-10	1.7E-10
EU 3	600	Ra-226	2.45	1.4	1.05E+00	6.6E-01	1.2E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.96E-02	6.8E-01
EU 3	600	Ra-228	1.04	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	600	Th-228	0.894	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	600	Th-230	1.13	1.12	1.00E-02	1.8E-03	1.6E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.74E-05	1.9E-03
EU 3	600	Th-232	0.868	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
EU 3	600	U-234	1.55	1.33	2.20E-01	1.2E-04	1.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.75E-04	4.3E-04
EU 3	600	U-235	0.36	0.19	1.75E-01	9.8E-03	1.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.77E-04	1.0E-02
EU 3	600	U-238	1.57	1.50	7.00E-02	7.5E-04	3.9E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.15E-05	8.4E-04
												Total	**7.4E-01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Table F.13. Future Baseline Dose Estimates (no maintenance of cleaner surface soil)

Tonawanda Landfill re-BRA - Trespasser Youth Future Baseline Dose Estimates													
			Gross	Average	Net								Total
			EPC	BKG	EPC	Pathway-Specific Dose Estimate (mrem/yr)							Dose
EU	Year	Nuclide	(pCi/g)	(pCi/g)	(pCi/g)	Gamma	Inh	Radon	Plant	Meat	Milk	Soil	(mrem/yr)
Site-wide	0	Ac-227	1.59	0.19	1.40E+00	9.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	9.5E-06
Site-wide	0	Pa-231	1.59	0.19	1.40E+00	7.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	7.2E-07
Site-wide	0	Pb-210	21.8	1.4	2.04E+01	5.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	5.4E-08
Site-wide	0	Ra-226	21.8	1.4	2.04E+01	1.7E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	1.7E-02
Site-wide	0	Ra-228	1.1	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Th-228	0.96	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	Th-230	14.3	1.12	1.32E+01	2.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.3E-06
Site-wide	0	Th-232	0.941	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	0	U-234	20.7	1.33	1.94E+01	2.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	2.2E-11
Site-wide	0	U-235	1.59	0.19	1.40E+00	3.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	3.0E-07
Site-wide	0	U-238	20.7	1.50	1.92E+01	5.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	5.3E-05
												Total	**1.7E-02**
Site-wide	600	Ac-227	1.59	0.19	1.40E+00	1.0E-09	2.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.95E-10	1.6E-09
Site-wide	600	Pa-231	1.59	0.19	1.40E+00	2.2E-01	5.3E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.70E-02	3.7E-01
Site-wide	600	Pb-210	21.8	1.4	2.04E+01	6.7E-11	1.7E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.14E-09	3.2E-09
Site-wide	600	Ra-226	21.8	1.4	2.04E+01	1.3E+01	2.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.80E-01	1.3E+01
Site-wide	600	Ra-228	1.1	1.53	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	600	Th-228	0.96	1.06	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	600	Th-230	14.3	1.12	1.32E+01	2.4E+00	2.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.88E-02	2.5E+00
Site-wide	600	Th-232	0.941	1.02	0.00E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.00E+00	0.0E+00
Site-wide	600	U-234	20.7	1.33	1.94E+01	1.0E-02	1.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.54E-02	3.8E-02
Site-wide	600	U-235	1.59	0.19	1.40E+00	7.8E-02	1.5E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.22E-03	8.2E-02
Site-wide	600	U-238	20.7	1.50	1.92E+01	2.1E-01	1.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.41E-02	2.3E-01
												Total	**1.6E+01**

BKG = background
EPC = exposure point concentration
EU = exposure unit
Inh = inhalation
Net EPC = Gross EPC - BKG
Total Risk = Σ Pathway-Specific Risk Estimates

Appendix G
RESRAD Summary Output Files

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Appendix G-1
RESRAD Dose Output for Trespasser Youth

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1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:17 Page 1
Summary : TTLF Recreational Youth - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

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1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:17 Page 2
Summary : TTLF Recreational Youth - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(2)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(3)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(4)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(5)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(6)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(7)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(8)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(9)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1(10)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1(11)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(12)

A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(13)
A-1	Pb-212 (Source: FGR 12)	7.043E-01	7.043E-01	DCF1(14)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(15)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(16)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(17)
A-1	Po-212 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(18)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(19)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(20)
A-1	Po-216 (Source: FGR 12)	1.042E-04	1.042E-04	DCF1(21)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(22)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(23)
A-1	Ra-224 (Source: FGR 12)	5.119E-02	5.119E-02	DCF1(24)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(25)
A-1	Ra-228 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(26)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(27)
A-1	Rn-220 (Source: FGR 12)	2.298E-03	2.298E-03	DCF1(28)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(29)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(30)
A-1	Th-228 (Source: FGR 12)	7.940E-03	7.940E-03	DCF1(31)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(32)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(33)
A-1	Th-232 (Source: FGR 12)	5.212E-04	5.212E-04	DCF1(34)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1(35)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(36)
A-1	Tl-208 (Source: FGR 12)	2.298E+01	2.298E+01	DCF1(37)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(38)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(39)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(40)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1(41)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	2.320E-02	1.360E-02	DCF2(3)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(4)
B-1	Ra-228+D	5.078E-03	4.770E-03	DCF2(5)
B-1	Th-228+D	3.454E-01	3.420E-01	DCF2(6)

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-230	3.260E-01	3.260E-01	DCF2(7)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(8)

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B-1  ³ U-234                                                    ³ 1.320E-01 ³ 1.320E-01 ³ DCF2(  9)
B-1  ³ U-235+D                                                  ³ 1.230E-01 ³ 1.230E-01 ³ DCF2( 10)
B-1  ³ U-238                                                    ³ 1.180E-01 ³ 1.180E-01 ³ DCF2( 11)
B-1  ³ U-238+D                                                  ³ 1.180E-01 ³ 1.180E-01 ³ DCF2( 12)
     ³                                                          ³           ³           ³
D-1  ³ Dose conversion factors for ingestion, mrem/pCi:         ³           ³           ³
D-1  ³ Ac-227+D                                                 ³ 1.480E-02 ³ 1.410E-02 ³ DCF3(  1)
D-1  ³ Pa-231                                                   ³ 1.060E-02 ³ 1.060E-02 ³ DCF3(  2)
D-1  ³ Pb-210+D                                                 ³ 7.276E-03 ³ 5.370E-03 ³ DCF3(  3)
D-1  ³ Ra-226+D                                                 ³ 1.321E-03 ³ 1.320E-03 ³ DCF3(  4)
D-1  ³ Ra-228+D                                                 ³ 1.442E-03 ³ 1.440E-03 ³ DCF3(  5)
D-1  ³ Th-228+D                                                 ³ 8.086E-04 ³ 3.960E-04 ³ DCF3(  6)
D-1  ³ Th-230                                                   ³ 5.480E-04 ³ 5.480E-04 ³ DCF3(  7)
D-1  ³ Th-232                                                   ³ 2.730E-03 ³ 2.730E-03 ³ DCF3(  8)
D-1  ³ U-234                                                    ³ 2.830E-04 ³ 2.830E-04 ³ DCF3(  9)
D-1  ³ U-235+D                                                  ³ 2.673E-04 ³ 2.660E-04 ³ DCF3( 10)
D-1  ³ U-238                                                    ³ 2.550E-04 ³ 2.550E-04 ³ DCF3( 11)
D-1  ³ U-238+D                                                  ³ 2.687E-04 ³ 2.550E-04 ³ DCF3( 12)
     ³                                                          ³           ³           ³
D-34 ³ Food transfer factors:                                   ³           ³           ³
D-34 ³ Ac-227+D  , plant/soil concentration ratio, dimensionless ³ 2.500E-03 ³ 2.500E-03 ³ RTF(  1,1)
D-34 ³ Ac-227+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 2.000E-05 ³ 2.000E-05 ³ RTF(  1,2)
D-34 ³ Ac-227+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 2.000E-05 ³ 2.000E-05 ³ RTF(  1,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Pa-231    , plant/soil concentration ratio, dimensionless ³ 1.000E-02 ³ 1.000E-02 ³ RTF(  2,1)
D-34 ³ Pa-231    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 5.000E-03 ³ 5.000E-03 ³ RTF(  2,2)
D-34 ³ Pa-231    , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  2,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Pb-210+D  , plant/soil concentration ratio, dimensionless ³ 1.000E-02 ³ 1.000E-02 ³ RTF(  3,1)
D-34 ³ Pb-210+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 8.000E-04 ³ 8.000E-04 ³ RTF(  3,2)
D-34 ³ Pb-210+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 3.000E-04 ³ 3.000E-04 ³ RTF(  3,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Ra-226+D  , plant/soil concentration ratio, dimensionless ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  4,1)
D-34 ³ Ra-226+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,2)
D-34 ³ Ra-226+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Ra-228+D  , plant/soil concentration ratio, dimensionless ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  5,1)
D-34 ³ Ra-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,2)
D-34 ³ Ra-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Th-228+D  , plant/soil concentration ratio, dimensionless ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  6,1)
D-34 ³ Th-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  6,2)
D-34 ³ Th-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  6,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Th-230    , plant/soil concentration ratio, dimensionless ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  7,1)
D-34 ³ Th-230    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  7,2)
D-34 ³ Th-230    , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  7,3)
D-34 ³                                                          ³           ³           ³
```

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(8,1)
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(8,2)
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(8,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(9,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(9,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(9,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(10,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(10,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(10,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(11,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(11,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(11,3)
D-34				
D-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(12,1)
D-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(12,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(12,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
D-5				
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)
D-5				
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(4,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(4,2)
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIOFAC(5,1)
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(5,2)
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIOFAC(6,1)
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(6,2)
D-5				

```
 D-5  ³ Th-230    , fish                                        ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  7,1)
 D-5  ³ Th-230    , crustacea and mollusks                      ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  7,2)
 D-5  ³                                                         ³           ³           ³
 D-5  ³ Th-232    , fish                                        ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  8,1)
 D-5  ³ Th-232    , crustacea and mollusks                      ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  8,2)
 D-5  ³                                                         ³           ³           ³
 D-5  ³ U-234     , fish                                        ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC(  9,1)
 D-5  ³ U-234     , crustacea and mollusks                      ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC(  9,2)
 D-5  ³                                                         ³           ³           ³
 D-5  ³ U-235+D   , fish                                        ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 10,1)
 D-5  ³ U-235+D   , crustacea and mollusks                      ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 10,2)
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 Summary : TTLF Recreational Youth - Re-baseline March 2010
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                    Dose Conversion Factor (and Related) Parameter Summary (continued)
                                      Dose Library: FGR 12 & FGR 11
0     ³                                                         ³  Current  ³   Base    ³  Parameter
 Menu ³                        Parameter                        ³   Value#  ³   Case*   ³    Name
 ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 D-5  ³ U-238     , fish                                        ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 11,1)
 D-5  ³ U-238     , crustacea and mollusks                      ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 11,2)
 D-5  ³                                                         ³           ³           ³
 D-5  ³ U-238+D   , fish                                        ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 12,1)
 D-5  ³ U-238+D   , crustacea and mollusks                      ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 12,2)
 ÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
 #For DCF1(xxx) only, factors are for infinite depth & area.  See ETFG table in Ground Pathway of Detailed
Report.
 *Base Case means Default.Lib w/o Associate Nuclide contributions.
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                                                        Site-Specific Parameter Summary
0     ³                                              ³   User    ³           ³          Used by RESRAD
    ³  Parameter
 Menu ³                Parameter                     ³   Input   ³  Default  ³ (If different from user
input) ³    Name

ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R011 ³ Area of contaminated zone (m**2)             ³ 1.000E+04 ³ 1.000E+04 ³              ---
    ³ AREA
 R011 ³ Thickness of contaminated zone (m)           ³ 2.000E+00 ³ 2.000E+00 ³              ---
    ³ THICK0
 R011 ³ Fraction of contamination that is submerged  ³ 8.500E-01 ³ 0.000E+00 ³              ---
    ³ SUBMFRACT
 R011 ³ Length parallel to aquifer flow (m)          ³ not used  ³ 1.000E+02 ³              ---
```

```
    ³ LCZPAQ
R011 ³ Basic radiation dose limit (mrem/yr)             ³ 2.500E+01 ³ 3.000E+01 ³              ---
    ³ BRDL
R011 ³ Time since placement of material (yr)            ³ 0.000E+00 ³ 0.000E+00 ³              ---
    ³ TI
R011 ³ Times for calculations (yr)                      ³ 1.000E+00 ³ 1.000E+00 ³              ---
    ³ T( 2)
R011 ³ Times for calculations (yr)                      ³ 3.000E+00 ³ 3.000E+00 ³              ---
    ³ T( 3)
R011 ³ Times for calculations (yr)                      ³ 1.000E+01 ³ 1.000E+01 ³              ---
    ³ T( 4)
R011 ³ Times for calculations (yr)                      ³ 3.000E+01 ³ 3.000E+01 ³              ---
    ³ T( 5)
R011 ³ Times for calculations (yr)                      ³ 1.000E+02 ³ 1.000E+02 ³              ---
    ³ T( 6)
R011 ³ Times for calculations (yr)                      ³ 3.000E+02 ³ 3.000E+02 ³              ---
    ³ T( 7)
R011 ³ Times for calculations (yr)                      ³ 1.000E+03 ³ 1.000E+03 ³              ---
    ³ T( 8)
R011 ³ Times for calculations (yr)                      ³ not used  ³ 0.000E+00 ³              ---
    ³ T( 9)
R011 ³ Times for calculations (yr)                      ³ not used  ³ 0.000E+00 ³              ---
    ³ T(10)
     ³                                                  ³           ³           ³
    ³
R012 ³ Initial principal radionuclide (pCi/g):  Ac-227  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(1)
R012 ³ Initial principal radionuclide (pCi/g):  Pa-231  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(2)
R012 ³ Initial principal radionuclide (pCi/g):  Pb-210  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(3)
R012 ³ Initial principal radionuclide (pCi/g):  Ra-226  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(4)
R012 ³ Initial principal radionuclide (pCi/g):  Ra-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(5)
R012 ³ Initial principal radionuclide (pCi/g):  Th-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(6)
R012 ³ Initial principal radionuclide (pCi/g):  Th-230  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(7)
R012 ³ Initial principal radionuclide (pCi/g):  Th-232  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(8)
R012 ³ Initial principal radionuclide (pCi/g):  U-234   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(9)
R012 ³ Initial principal radionuclide (pCi/g):  U-235   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(10)
R012 ³ Initial principal radionuclide (pCi/g):  U-238   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(11)
R012 ³ Concentration in groundwater   (pCi/L):  Ac-227  ³ 5.350E+00 ³ 0.000E+00 ³          0.000E+00
```

```
     ³ W1( 1)
 R012 ³ Concentration in groundwater   (pCi/L):  Pa-231  ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 2)
 R012 ³ Concentration in groundwater   (pCi/L):  Pb-210  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 3)
 R012 ³ Concentration in groundwater   (pCi/L):  Ra-226  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 4)
 R012 ³ Concentration in groundwater   (pCi/L):  Ra-228  ³ 5.460E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 5)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-228  ³ 2.330E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 6)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-230  ³ 5.580E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 7)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-232  ³ 1.730E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 8)
 R012 ³ Concentration in groundwater   (pCi/L):  U-234   ³ 7.360E+01 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 9)
 R012 ³ Concentration in groundwater   (pCi/L):  U-235   ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1(10)
 R012 ³ Concentration in groundwater   (pCi/L):  U-238   ³ 7.280E+01 ³ 0.000E+00 ³           0.000E+00
     ³ W1(11)
      ³                                                  ³           ³           ³
     ³
 R013 ³ Cover depth (m)                                  ³ 0.000E+00 ³ 0.000E+00 ³              ---
     ³ COVER0
 R013 ³ Density of cover material (g/cm**3)              ³ not used  ³ 1.500E+00 ³              ---
     ³ DENSCV
 R013 ³ Cover depth erosion rate (m/yr)                  ³ not used  ³ 1.000E-03 ³              ---
     ³ VCV
 R013 ³ Density of contaminated zone (g/cm**3)           ³ 1.450E+00 ³ 1.500E+00 ³              ---
     ³ DENSCZ
 R013 ³ Contaminated zone erosion rate (m/yr)            ³ 1.000E-03 ³ 1.000E-03 ³              ---
     ³ VCZ
 R013 ³ Contaminated zone total porosity                 ³ 4.500E-01 ³ 4.000E-01 ³              ---
     ³ TPCZ
 R013 ³ Contaminated zone field capacity                 ³ 2.000E-01 ³ 2.000E-01 ³              ---
     ³ FCCZ
 R013 ³ Contaminated zone hydraulic conductivity (m/yr)  ³ 2.270E+03 ³ 1.000E+01 ³              ---
     ³ HCCZ
 R013 ³ Contaminated zone b parameter                    ³ 4.000E+00 ³ 5.300E+00 ³              ---
     ³ BCZ
 R013 ³ Average annual wind speed (m/sec)                ³ 2.000E+00 ³ 2.000E+00 ³              ---
     ³ WIND
 R013 ³ Humidity in air (g/m**3)                         ³ not used  ³ 8.000E+00 ³              ---
     ³ HUMID
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```

Site-Specific Parameter Summary (continued)

Menu	Parameter Name	Parameter	User Input	Default	Used by RESRAD (If different from user input)
R013	EVAPTR	Evapotranspiration coefficient	7.800E-01	5.000E-01	---
R013	PRECIP	Precipitation (m/yr)	9.800E-01	1.000E+00	---
R013	RI	Irrigation (m/yr)	2.000E-01	2.000E-01	---
R013	IDITCH	Irrigation mode	overhead	overhead	---
R013	RUNOFF	Runoff coefficient	5.000E-01	2.000E-01	---
R013	WAREA	Watershed area for nearby stream or pond (m**2)	not used	1.000E+06	---
R013	EPS	Accuracy for water/soil computations	not used	1.000E-03	---
R014	DENSAQ	Density of saturated zone (g/cm**3)	not used	1.500E+00	---
R014	TPSZ	Saturated zone total porosity	not used	4.000E-01	---
R014	EPSZ	Saturated zone effective porosity	not used	2.000E-01	---
R014	FCSZ	Saturated zone field capacity	not used	2.000E-01	---
R014	HCSZ	Saturated zone hydraulic conductivity (m/yr)	not used	1.000E+02	---
R014	HGWT	Saturated zone hydraulic gradient	not used	2.000E-02	---
R014	BSZ	Saturated zone b parameter	not used	5.300E+00	---
R014	VWT	Water table drop rate (m/yr)	not used	1.000E-03	---
R014	DWIBWT	Well pump intake depth (m below water table)	not used	1.000E+01	---
R014	MODEL	Model: Nondispersion (ND) or Mass-Balance (MB)	not used	ND	---
R014	UW	Well pumping rate (m**3/yr)	not used	2.500E+02	---

```
     ³
R015 ³ Number of unsaturated zone strata                ³ not used  ³ 1         ³              ---
     ³ NS
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Ac-227             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 2.400E+03 ³ 2.000E+01 ³              ---
     ³ DCNUCC( 1)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 2.000E+01 ³              ---
     ³ DCNUCS( 1)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           2.669E-05
     ³ ALEACH( 1)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 1)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Pa-231             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 2.700E+03 ³ 5.000E+01 ³              ---
     ³ DCNUCC( 2)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
     ³ DCNUCS( 2)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           2.373E-05
     ³ ALEACH( 2)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 2)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Pb-210             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 5.500E+02 ³ 1.000E+02 ³              ---
     ³ DCNUCC( 3)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 1.000E+02 ³              ---
     ³ DCNUCS( 3)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           1.164E-04
     ³ ALEACH( 3)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 3)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Ra-226             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 9.100E+03 ³ 7.000E+01 ³              ---
     ³ DCNUCC( 4)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 7.000E+01 ³              ---
     ³ DCNUCS( 4)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           7.040E-06
```

```
     ³ ALEACH( 4)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 4)
      ³                                                 ³           ³           ³
     ³
 R016 ³ Distribution coefficients for Ra-228            ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                   ³ 9.100E+03 ³ 7.000E+01 ³            ---
     ³ DCNUCC( 5)
 R016 ³   Saturated zone (cm**3/g)                      ³ not used  ³ 7.000E+01 ³            ---
     ³ DCNUCS( 5)
 R016 ³   Leach rate (/yr)                              ³ 0.000E+00 ³ 0.000E+00 ³           7.040E-06
     ³ ALEACH( 5)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 5)
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                                                      Site-Specific Parameter Summary (continued)
0     ³                                                 ³   User    ³           ³         Used by RESRAD
     ³  Parameter
 Menu ³                    Parameter                    ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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ÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R016 ³ Distribution coefficients for Th-228            ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                   ³ 5.800E+03 ³ 6.000E+04 ³            ---
     ³ DCNUCC( 6)
 R016 ³   Saturated zone (cm**3/g)                      ³ not used  ³ 6.000E+04 ³            ---
     ³ DCNUCS( 6)
 R016 ³   Leach rate (/yr)                              ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
     ³ ALEACH( 6)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 6)
      ³                                                 ³           ³           ³
     ³
 R016 ³ Distribution coefficients for Th-230            ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                   ³ 5.800E+03 ³ 6.000E+04 ³            ---
     ³ DCNUCC( 7)
 R016 ³   Saturated zone (cm**3/g)                      ³ not used  ³ 6.000E+04 ³            ---
     ³ DCNUCS( 7)
 R016 ³   Leach rate (/yr)                              ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
     ³ ALEACH( 7)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³           not used
```

```
    ³ SOLUBK( 7)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for Th-232             ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 5.800E+03 ³ 6.000E+04 ³              ---
    ³ DCNUCC( 8)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 6.000E+04 ³              ---
    ³ DCNUCS( 8)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
    ³ ALEACH( 8)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK( 8)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-234              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC( 9)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS( 9)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH( 9)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK( 9)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-235              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC(10)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS(10)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH(10)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK(10)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-238              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC(11)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS(11)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH(11)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
```

```
     ³ SOLUBK(11)
      ³                                                ³            ³            ³
     ³
 R017 ³ Inhalation rate (m**3/yr)                       ³ 1.240E+04 ³ 8.400E+03 ³              ---
     ³ INHALR
 R017 ³ Mass loading for inhalation (g/m**3)            ³ 3.000E-05 ³ 1.000E-04 ³              ---
     ³ MLINH
 R017 ³ Exposure duration                               ³ 1.200E+01 ³ 3.000E+01 ³              ---
     ³ ED
 R017 ³ Shielding factor, inhalation                    ³ 4.000E-01 ³ 4.000E-01 ³              ---
     ³ SHF3
 R017 ³ Shielding factor, external gamma                ³ 4.000E-01 ³ 7.000E-01 ³              ---
     ³ SHF1
 R017 ³ Fraction of time spent indoors                  ³ 0.000E+00 ³ 5.000E-01 ³              ---
     ³ FIND
 R017 ³ Fraction of time spent outdoors (on site)       ³ 7.700E-02 ³ 2.500E-01 ³              ---
     ³ FOTD
 R017 ³ Shape factor flag, external gamma               ³ 1.000E+00 ³ 1.000E+00 ³    >0 shows circular
AREA.     ³ FS
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0     ³                                                ³   User    ³            ³         Used by RESRAD
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input) ³    Name

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 R017 ³ Radii of shape factor array (used if FS = -1):   ³            ³            ³
     ³
 R017 ³   Outer annular radius (m), ring  1:            ³ not used  ³ 5.000E+01 ³              ---
     ³ RAD_SHAPE( 1)
 R017 ³   Outer annular radius (m), ring  2:            ³ not used  ³ 7.071E+01 ³              ---
     ³ RAD_SHAPE( 2)
 R017 ³   Outer annular radius (m), ring  3:            ³ not used  ³ 0.000E+00 ³              ---
     ³ RAD_SHAPE( 3)
 R017 ³   Outer annular radius (m), ring  4:            ³ not used  ³ 0.000E+00 ³              ---
     ³ RAD_SHAPE( 4)
 R017 ³   Outer annular radius (m), ring  5:            ³ not used  ³ 0.000E+00 ³              ---
     ³ RAD_SHAPE( 5)
 R017 ³   Outer annular radius (m), ring  6:            ³ not used  ³ 0.000E+00 ³              ---
     ³ RAD_SHAPE( 6)
 R017 ³   Outer annular radius (m), ring  7:            ³ not used  ³ 0.000E+00 ³              ---
     ³ RAD_SHAPE( 7)
 R017 ³   Outer annular radius (m), ring  8:            ³ not used  ³ 0.000E+00 ³              ---
```

```
    ³ RAD_SHAPE( 8)
R017 ³   Outer annular radius (m), ring  9:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE( 9)
R017 ³   Outer annular radius (m), ring 10:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(10)
R017 ³   Outer annular radius (m), ring 11:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(11)
R017 ³   Outer annular radius (m), ring 12:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(12)
     ³                                                  ³           ³           ³
    ³
R017 ³ Fractions of annular areas within AREA:          ³           ³           ³
    ³
R017 ³   Ring  1                                        ³ not used  ³ 1.000E+00 ³              ---
    ³ FRACA( 1)
R017 ³   Ring  2                                        ³ not used  ³ 2.732E-01 ³              ---
    ³ FRACA( 2)
R017 ³   Ring  3                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 3)
R017 ³   Ring  4                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 4)
R017 ³   Ring  5                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 5)
R017 ³   Ring  6                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 6)
R017 ³   Ring  7                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 7)
R017 ³   Ring  8                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 8)
R017 ³   Ring  9                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 9)
R017 ³   Ring 10                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(10)
R017 ³   Ring 11                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(11)
R017 ³   Ring 12                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(12)
     ³                                                  ³           ³           ³
    ³
R018 ³ Fruits, vegetables and grain consumption (kg/yr) ³ not used  ³ 1.600E+02 ³              ---
    ³ DIET(1)
R018 ³ Leafy vegetable consumption (kg/yr)              ³ not used  ³ 1.400E+01 ³              ---
    ³ DIET(2)
R018 ³ Milk consumption (L/yr)                          ³ not used  ³ 9.200E+01 ³              ---
    ³ DIET(3)
R018 ³ Meat and poultry consumption (kg/yr)             ³ not used  ³ 6.300E+01 ³              ---
    ³ DIET(4)
R018 ³ Fish consumption (kg/yr)                         ³ not used  ³ 5.400E+00 ³              ---
```

```
     ³ DIET(5)
 R018 ³ Other seafood consumption (kg/yr)              ³ not used  ³ 9.000E-01 ³            ---
     ³ DIET(6)
 R018 ³ Soil ingestion rate (g/yr)                     ³ 3.650E+01 ³ 3.650E+01 ³            ---
     ³ SOIL
 R018 ³ Drinking water intake (L/yr)                   ³ not used  ³ 5.100E+02 ³            ---
     ³ DWI
 R018 ³ Contamination fraction of drinking water       ³ not used  ³ 1.000E+00 ³            ---
     ³ FDW
 R018 ³ Contamination fraction of household water      ³ not used  ³ 1.000E+00 ³            ---
     ³ FHHW
 R018 ³ Contamination fraction of livestock water      ³ not used  ³ 1.000E+00 ³            ---
     ³ FLW
 R018 ³ Contamination fraction of irrigation water     ³ not used  ³ 1.000E+00 ³            ---
     ³ FIRW
 R018 ³ Contamination fraction of aquatic food         ³ not used  ³ 5.000E-01 ³            ---
     ³ FR9
 R018 ³ Contamination fraction of plant food           ³ not used  ³-1         ³            ---
     ³ FPLANT
 R018 ³ Contamination fraction of meat                 ³ not used  ³-1         ³            ---
     ³ FMEAT
 R018 ³ Contamination fraction of milk                 ³ not used  ³-1         ³            ---
     ³ FMILK
      ³                                                ³           ³           ³
     ³
 R019 ³ Livestock fodder intake for meat (kg/day)      ³ not used  ³ 6.800E+01 ³            ---
     ³ LFI5
 R019 ³ Livestock fodder intake for milk (kg/day)      ³ not used  ³ 5.500E+01 ³            ---
     ³ LFI6
 R019 ³ Livestock water intake for meat (L/day)        ³ not used  ³ 5.000E+01 ³            ---
     ³ LWI5
 R019 ³ Livestock water intake for milk (L/day)        ³ not used  ³ 1.600E+02 ³            ---
     ³ LWI6
 R019 ³ Livestock soil intake (kg/day)                 ³ not used  ³ 5.000E-01 ³            ---
     ³ LSI
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0     ³                                                ³   User    ³           ³         Used by RESRAD
     ³  Parameter
 Menu ³                  Parameter                     ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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 R019 ³ Mass loading for foliar deposition (g/m**3)    ³ not used  ³ 1.000E-04 ³            ---
```

```
    ³ MLFD
R019 ³ Depth of soil mixing layer (m)                    ³ 1.500E-01 ³ 1.500E-01 ³              ---
    ³ DM
R019 ³ Depth of roots (m)                                ³ not used  ³ 9.000E-01 ³              ---
    ³ DROOT
R019 ³ Drinking water fraction from ground water         ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWDW
R019 ³ Household water fraction from ground water        ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWHH
R019 ³ Livestock water fraction from ground water        ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWLW
R019 ³ Irrigation fraction from ground water             ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWIR
     ³                                                   ³           ³           ³
    ³
R19B ³ Wet weight crop yield for Non-Leafy (kg/m**2)     ³ not used  ³ 7.000E-01 ³              ---
    ³ YV(1)
R19B ³ Wet weight crop yield for Leafy     (kg/m**2)     ³ not used  ³ 1.500E+00 ³              ---
    ³ YV(2)
R19B ³ Wet weight crop yield for Fodder    (kg/m**2)     ³ not used  ³ 1.100E+00 ³              ---
    ³ YV(3)
R19B ³ Growing Season for  Non-Leafy (years)             ³ not used  ³ 1.700E-01 ³              ---
    ³ TE(1)
R19B ³ Growing Season for  Leafy     (years)             ³ not used  ³ 2.500E-01 ³              ---
    ³ TE(2)
R19B ³ Growing Season for  Fodder    (years)             ³ not used  ³ 8.000E-02 ³              ---
    ³ TE(3)
R19B ³ Translocation Factor for  Non-Leafy               ³ not used  ³ 1.000E-01 ³              ---
    ³ TIV(1)
R19B ³ Translocation Factor for  Leafy                   ³ not used  ³ 1.000E+00 ³              ---
    ³ TIV(2)
R19B ³ Translocation Factor for  Fodder                  ³ not used  ³ 1.000E+00 ³              ---
    ³ TIV(3)
R19B ³ Dry Foliar Interception Fraction for  Non-Leafy   ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(1)
R19B ³ Dry Foliar Interception Fraction for  Leafy       ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(2)
R19B ³ Dry Foliar Interception Fraction for  Fodder      ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(3)
R19B ³ Wet Foliar Interception Fraction for  Non-Leafy   ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(1)
R19B ³ Wet Foliar Interception Fraction for  Leafy       ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(2)
R19B ³ Wet Foliar Interception Fraction for  Fodder      ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(3)
R19B ³ Weathering Removal Constant for Vegetation        ³ not used  ³ 2.000E+01 ³              ---
    ³ WLAM
     ³                                                   ³           ³           ³
```

```
     ³
C14  ³ C-12 concentration in water (g/cm**3)            ³ not used  ³ 2.000E-05 ³               ---
     ³ C12WTR
C14  ³ C-12 concentration in contaminated soil (g/g)    ³ not used  ³ 3.000E-02 ³               ---
     ³ C12CZ
C14  ³ Fraction of vegetation carbon from soil          ³ not used  ³ 2.000E-02 ³               ---
     ³ CSOIL
C14  ³ Fraction of vegetation carbon from air           ³ not used  ³ 9.800E-01 ³               ---
     ³ CAIR
C14  ³ C-14 evasion layer thickness in soil (m)         ³ not used  ³ 3.000E-01 ³               ---
     ³ DMC
C14  ³ C-14 evasion flux rate from soil (1/sec)         ³ not used  ³ 7.000E-07 ³               ---
     ³ EVSN
C14  ³ C-12 evasion flux rate from soil (1/sec)         ³ not used  ³ 1.000E-10 ³               ---
     ³ REVSN
C14  ³ Fraction of grain in beef cattle feed            ³ not used  ³ 8.000E-01 ³               ---
     ³ AVFG4
C14  ³ Fraction of grain in milk cow feed               ³ not used  ³ 2.000E-01 ³               ---
     ³ AVFG5
      ³                                                 ³           ³           ³
     ³
STOR ³ Storage times of contaminated foodstuffs (days): ³           ³           ³
     ³
STOR ³   Fruits, non-leafy vegetables, and grain        ³ 1.400E+01 ³ 1.400E+01 ³               ---
     ³ STOR_T(1)
STOR ³   Leafy vegetables                               ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(2)
STOR ³   Milk                                           ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(3)
STOR ³   Meat and poultry                               ³ 2.000E+01 ³ 2.000E+01 ³               ---
     ³ STOR_T(4)
STOR ³   Fish                                           ³ 7.000E+00 ³ 7.000E+00 ³               ---
     ³ STOR_T(5)
STOR ³   Crustacea and mollusks                         ³ 7.000E+00 ³ 7.000E+00 ³               ---
     ³ STOR_T(6)
STOR ³   Well water                                     ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(7)
STOR ³   Surface water                                  ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(8)
STOR ³   Livestock fodder                               ³ 4.500E+01 ³ 4.500E+01 ³               ---
     ³ STOR_T(9)
      ³                                                 ³           ³           ³
     ³
R021 ³ Thickness of building foundation (m)             ³ not used  ³ 1.500E-01 ³               ---
     ³ FLOOR1
R021 ³ Bulk density of building foundation (g/cm**3)    ³ not used  ³ 2.400E+00 ³               ---
     ³ DENSFL
R021 ³ Total porosity of the cover material             ³ not used  ³ 4.000E-01 ³               ---
```

```
     ³ TPCV
 R021 ³ Total porosity of the building foundation       ³ not used  ³ 1.000E-01 ³              ---
     ³ TPFL
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                                           Site-Specific Parameter Summary (continued)
0      ³                                                ³   User    ³           ³         Used by RESRAD
     ³  Parameter
 Menu ³                    Parameter                    ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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 R021 ³ Volumetric water content of the cover material   ³ not used  ³ 5.000E-02 ³              ---
     ³ PH2OCV
 R021 ³ Volumetric water content of the foundation       ³ not used  ³ 3.000E-02 ³              ---
     ³ PH2OFL
 R021 ³ Diffusion coefficient for radon gas (m/sec):     ³           ³           ³
     ³
 R021 ³   in cover material                              ³ not used  ³ 2.000E-06 ³              ---
     ³ DIFCV
 R021 ³   in foundation material                         ³ not used  ³ 3.000E-07 ³              ---
     ³ DIFFL
 R021 ³   in contaminated zone soil                      ³ not used  ³ 2.000E-06 ³              ---
     ³ DIFCZ
 R021 ³ Radon vertical dimension of mixing (m)           ³ not used  ³ 2.000E+00 ³              ---
     ³ HMIX
 R021 ³ Average building air exchange rate (1/hr)        ³ not used  ³ 5.000E-01 ³              ---
     ³ REXG
 R021 ³ Height of the building (room) (m)                ³ not used  ³ 2.500E+00 ³              ---
     ³ HRM
 R021 ³ Building interior area factor                    ³ not used  ³ 0.000E+00 ³              ---
     ³ FAI
 R021 ³ Building depth below ground surface (m)          ³ not used  ³-1.000E+00 ³              ---
     ³ DMFL
 R021 ³ Emanating power of Rn-222 gas                    ³ not used  ³ 2.500E-01 ³              ---
     ³ EMANA(1)
 R021 ³ Emanating power of Rn-220 gas                    ³ not used  ³ 1.500E-01 ³              ---
     ³ EMANA(2)
      ³                                                  ³           ³           ³
     ³
 TITL ³ Number of graphical time points                  ³     32    ³    ---    ³              ---
     ³ NPTS
 TITL ³ Maximum number of integration points for dose    ³     17    ³    ---    ³              ---
     ³ LYMAX
 TITL ³ Maximum number of integration points for risk    ³    257    ³    ---    ³              ---
```

³ KYMAX

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Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Contaminated Zone Dimensions

Area: 10000.00 square meters
Thickness: 2.00 meters

Cover Depth: 0.00 meters

Initial Soil Concentrations, pCi/g

Ac-227	1.000E+00
Pa-231	1.000E+00
Pb-210	1.000E+00
Ra-226	1.000E+00
Ra-228	1.000E+00
Th-228	1.000E+00
Th-230	1.000E+00
Th-232	1.000E+00
U-234	1.000E+00
U-235	1.000E+00
U-238	1.000E+00

0

Total Dose TDOSE(t), mrem/yr

Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

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t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	2.377E+00	2.377E+00	2.377E+00	2.376E+00	2.376E+00	2.374E+00	2.368E+00	2.348E+00
M(t):	9.507E-02	9.507E-02	9.506E-02	9.505E-02	9.503E-02	9.495E-02	9.472E-02	9.391E-02

0Maximum TDOSE(t): 2.377E+00 mrem/yr at t = 0.000E+00 years

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	1.445E-01	0.0608	3.209E-02	0.0135	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.093E-02	0.0172
Pa-231	1.619E-02	0.0068	6.721E-03	0.0028	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.045E-02	0.0128
Pb-210	4.441E-04	0.0002	1.108E-04	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.013E-02	0.0085
Ra-226	8.099E-01	0.3408	4.340E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.026E-03	0.0017
Ra-228	5.228E-01	0.2200	2.822E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.170E-03	0.0018
Th-228	6.207E-01	0.2612	1.405E-03	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.906E-03	0.0008
Th-230	2.647E-04	0.0001	1.581E-03	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.541E-03	0.0006
Th-232	2.993E-02	0.0126	7.965E-03	0.0034	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.922E-03	0.0033
U-234	2.983E-05	0.0000	6.401E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.954E-04	0.0003
U-235	5.555E-02	0.0234	5.965E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.517E-04	0.0003
U-238	1.102E-02	0.0046	5.724E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.552E-04	0.0003
Total	2.211E+00	0.9304	5.201E-02	0.0219	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.134E-01	0.0477

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

0 Water Dependent Pathways

0 Water Fish Radon Plant Meat Milk All Pathways*

Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0*Sum of all water independent and dependent pathways.

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Summary : TTLF Recreational Youth - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

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0              Ground          Inhalation            Radon              Plant              Meat
Milk                Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  1.399E-01 0.0589  3.109E-02 0.0131  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.965E-02 0.0167
 Pa-231  2.071E-02 0.0087  7.726E-03 0.0033  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.173E-02 0.0133
 Pb-210  4.305E-04 0.0002  1.073E-04 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.952E-02 0.0082
 Ra-226  8.096E-01 0.3406  4.677E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.640E-03 0.0020
 Ra-228  6.405E-01 0.2695  6.510E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.240E-03 0.0018
 Th-228  4.320E-01 0.1818  9.779E-04 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.327E-03 0.0006
 Th-230  6.155E-04 0.0003  1.581E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.543E-03 0.0006
 Th-232  1.009E-01 0.0424  8.023E-03 0.0034  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.431E-03 0.0035
 U-234   2.983E-05 0.0000  6.401E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.953E-04 0.0003
 U-235   5.555E-02 0.0234  5.967E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.523E-04 0.0003
 U-238   1.102E-02 0.0046  5.724E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.552E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.211E+00 0.9304  5.201E-02 0.0219  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.134E-01 0.0477
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                  As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  2.107E-01 0.0886
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.017E-02 0.0253
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.005E-02 0.0084
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.143E-01 0.3426
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.454E-01 0.2715
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.343E-01 0.1828
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.739E-03 0.0016
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.173E-01 0.0494
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.465E-03 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.690E-02 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.235E-02 0.0052
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.377E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  15
 Summary : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon              Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  1.313E-01 0.0552  2.917E-02 0.0123  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.720E-02 0.0157
 Pa-231  2.934E-02 0.0123  9.643E-03 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.417E-02 0.0144
 Pb-210  4.044E-04 0.0002  1.009E-04 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.834E-02 0.0077
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 Ra-226  8.089E-01 0.3404  5.319E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.812E-03 0.0024
 Ra-228  6.983E-01 0.2938  9.530E-04 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.931E-03 0.0017
 Th-228  2.093E-01 0.0881  4.738E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.429E-04 0.0003
 Th-230  1.317E-03 0.0006  1.581E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.547E-03 0.0007
 Th-232  2.657E-01 0.1118  8.225E-03 0.0035  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.424E-03 0.0040
 U-234   2.984E-05 0.0000  6.401E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.953E-04 0.0003
 U-235   5.554E-02 0.0234  5.970E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.537E-04 0.0003
 U-238   1.102E-02 0.0046  5.723E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.551E-04 0.0003
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.211E+00 0.9304  5.201E-02 0.0219  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.134E-01 0.0477
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0                                                   Water Dependent Pathways
0              Water              Fish               Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.977E-01 0.0832
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.315E-02 0.0308
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.884E-02 0.0079
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.148E-01 0.3428
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.032E-01 0.2959
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.104E-01 0.0885
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.445E-03 0.0019
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  2.834E-01 0.1192
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.465E-03 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.690E-02 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.235E-02 0.0052
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.377E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  16
 Summary : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk               Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  1.050E-01 0.0442  2.334E-02 0.0098  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.976E-02 0.0125
 Pa-231  5.555E-02 0.0234  1.546E-02 0.0065  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.159E-02 0.0175
 Pb-210  3.251E-04 0.0001  8.107E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.474E-02 0.0062
 Ra-226  8.065E-01 0.3394  7.271E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.372E-03 0.0039
 Ra-228  4.104E-01 0.1727  6.589E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.028E-03 0.0009
 Th-228  1.657E-02 0.0070  3.750E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.089E-05 0.0000
 Th-230  3.766E-03 0.0016  1.581E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.570E-03 0.0007
 Th-232  7.463E-01 0.3141  8.955E-03 0.0038  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.192E-02 0.0050
 U-234   2.999E-05 0.0000  6.400E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.952E-04 0.0003
 U-235   5.554E-02 0.0234  5.987E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.591E-04 0.0003
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 U-238   1.101E-02 0.0046  5.722E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.549E-04 0.0003
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 Total   2.211E+00 0.9304  5.200E-02 0.0219  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.133E-01 0.0477
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                    As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.581E-01 0.0665
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.126E-01 0.0474
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.514E-02 0.0064
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.159E-01 0.3434
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.130E-01 0.1738
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.666E-02 0.0070
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.917E-03 0.0029
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.672E-01 0.3229
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.465E-03 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.689E-02 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.234E-02 0.0052
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.376E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  17
 Summary : TTLF Recreational Youth - Re-baseline March 2010
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File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

0

Water Independent Pathways (Inhalation excludes radon)

0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	5.554E-02	0.0234	1.234E-02	0.0052	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.574E-02	0.0066
Pa-231	1.049E-01	0.0442	2.643E-02	0.0111	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.556E-02	0.0234
Pb-210	1.742E-04	0.0001	4.344E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.897E-03	0.0033
Ra-226	7.996E-01	0.3366	1.094E-04	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.607E-02	0.0068
Ra-228	3.903E-02	0.0164	6.412E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.888E-04	0.0001
Th-228	1.181E-05	0.0000	2.673E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.627E-08	0.0000
Th-230	1.072E-02	0.0045	1.581E-03	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.683E-03	0.0007
Th-232	1.134E+00	0.4773	9.585E-03	0.0040	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.380E-02	0.0058
U-234	3.127E-05	0.0000	6.397E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.948E-04	0.0003
U-235	5.553E-02	0.0234	6.073E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.793E-04	0.0003
U-238	1.101E-02	0.0046	5.718E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.543E-04	0.0003
Total	2.211E+00	0.9304	5.197E-02	0.0219	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.133E-01	0.0477

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

0

Water Dependent Pathways

0

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	

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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.362E-02 0.0352
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.869E-01 0.0787
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.114E-03 0.0034
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.158E-01 0.3434
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.928E-02 0.0165
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.187E-05 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.398E-02 0.0059
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.157E+00 0.4872
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.466E-03 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.691E-02 0.0240
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.233E-02 0.0052
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.376E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  18
 Summary : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                       As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  5.970E-03 0.0025  1.326E-03 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.692E-03 0.0007
 Pa-231  1.540E-01 0.0649  3.733E-02 0.0157  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.939E-02 0.0292
 Pb-210  1.961E-05 0.0000  4.891E-06 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.892E-04 0.0004
 Ra-226  7.755E-01 0.3267  1.437E-04 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.242E-02 0.0094
 Ra-228  8.446E-06 0.0000  1.388E-08 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.084E-08 0.0000
 Th-228  1.141E-16 0.0000  2.582E-19 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.504E-19 0.0000
 Th-230  3.457E-02 0.0146  1.583E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.300E-03 0.0010
 Th-232  1.172E+00 0.4938  9.642E-03 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.398E-02 0.0059
 U-234   4.547E-05 0.0000  6.388E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.936E-04 0.0003
 U-235   5.557E-02 0.0234  6.556E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.731E-04 0.0004
 U-238   1.098E-02 0.0046  5.703E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.524E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.209E+00 0.9305  5.189E-02 0.0219  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.131E-01 0.0476
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                    As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.988E-03 0.0038
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.607E-01 0.1098
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.137E-04 0.0004
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.980E-01 0.3362
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

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0.0000  8.500E-06 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.147E-16 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.845E-02 0.0162
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.196E+00 0.5037
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.478E-03 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.710E-02 0.0241
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.230E-02 0.0052
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.374E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  19
 Summary : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  1.020E-05 0.0000  2.266E-06 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.890E-06 0.0000
 Pa-231  1.586E-01 0.0670  3.831E-02 0.0162  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.044E-02 0.0297
 Pb-210  3.825E-08 0.0000  9.538E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.734E-06 0.0000
 Ra-226  7.101E-01 0.2999  1.361E-04 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.136E-02 0.0090
 Ra-228  2.854E-16 0.0000  4.689E-19 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.380E-18 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  9.862E-02 0.0416  1.589E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.209E-03 0.0018
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 Th-232  1.170E+00 0.4939  9.620E-03 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.395E-02 0.0059
 U-234   1.654E-04 0.0001  6.362E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.927E-04 0.0003
 U-235   5.580E-02 0.0236  8.117E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.163E-03 0.0005
 U-238   1.089E-02 0.0046  5.661E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.468E-04 0.0003
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.204E+00 0.9306  5.167E-02 0.0218  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.127E-01 0.0476
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                    As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.535E-05 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.673E-01 0.1129
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.782E-06 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.316E-01 0.3090
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.872E-16 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.044E-01 0.0441
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.193E+00 0.5038
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.594E-03 0.0007
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.777E-02 0.0244
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.220E-02 0.0052
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.368E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  20
 Summary : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon              Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  2.100E-15 0.0000  4.666E-16 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.952E-16 0.0000
 Pa-231  1.537E-01 0.0655  3.713E-02 0.0158  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.827E-02 0.0291
 Pb-210  1.253E-17 0.0000  3.124E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.679E-16 0.0000
 Ra-226  5.218E-01 0.2223  1.000E-04 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.569E-02 0.0067
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.812E-01 0.1198  1.602E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.683E-03 0.0041
 Th-232  1.160E+00 0.4943  9.546E-03 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.384E-02 0.0059
 U-234   1.373E-03 0.0006  6.273E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.134E-04 0.0003
 U-235   5.654E-02 0.0241  1.340E-03 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.144E-03 0.0009
 U-238   1.059E-02 0.0045  5.517E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.278E-04 0.0003
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.186E+00 0.9310  5.089E-02 0.0217  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.112E-01 0.0474
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
```

```
(p)
                                        As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                                   Water Dependent Pathways
0              Water              Fish              Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.162E-15 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.591E-01 0.1103
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.836E-16 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.376E-01 0.2290
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.925E-01 0.1246
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.184E+00 0.5043
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.814E-03 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.002E-02 0.0256
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.187E-02 0.0051
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.348E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  21
 Summary : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                                     Dose/Source Ratios Summed Over All Pathways

                          Parent and Progeny Principal Radionuclide Contributions Indicated

0  Parent    Product    Thread                    DSR(j,t) At Time in Years   (mrem/yr)/(pCi/g)
```

```
    (i)        (j)     Fraction   0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02
1.000E+03
 ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ
 Ac-227+D   Ac-227+D   1.000E+00  2.175E-01 2.107E-01 1.977E-01 1.581E-01 8.362E-02 8.988E-03 1.535E-05
3.162E-15
0Pa-231     Pa-231     1.000E+00  4.987E-02 4.987E-02 4.987E-02 4.985E-02 4.981E-02 4.965E-02 4.921E-02
4.769E-02
 Pa-231     Ac-227+D   1.000E+00  3.480E-03 1.029E-02 2.329E-02 6.275E-02 1.371E-01 2.111E-01 2.181E-01
2.114E-01
 Pa-231     äDSR(j)               5.335E-02 6.017E-02 7.315E-02 1.126E-01 1.869E-01 2.607E-01 2.673E-01
2.591E-01
0Pb-210+D   Pb-210+D   1.000E+00  2.069E-02 2.005E-02 1.884E-02 1.514E-02 8.114E-03 9.137E-04 1.782E-06
5.836E-16
0Ra-226+D   Ra-226+D   1.000E+00  8.137E-01 8.133E-01 8.126E-01 8.101E-01 8.030E-01 7.786E-01 7.130E-01
5.239E-01
 Ra-226+D   Pb-210+D   1.000E+00  3.232E-04 9.560E-04 2.163E-03 5.833E-03 1.275E-02 1.939E-02 1.860E-02
1.367E-02
 Ra-226+D   äDSR(j)               8.140E-01 8.143E-01 8.148E-01 8.159E-01 8.158E-01 7.980E-01 7.316E-01
5.376E-01
0Ra-228+D   Ra-228+D   1.000E+00  4.122E-01 3.654E-01 2.871E-01 1.235E-01 1.108E-02 2.396E-06 8.096E-17
0.000E+00
 Ra-228+D   Th-228+D   1.000E+00  1.150E-01 2.800E-01 4.161E-01 2.896E-01 2.820E-02 6.104E-06 2.063E-16
0.000E+00
 Ra-228+D   äDSR(j)               5.272E-01 6.454E-01 7.032E-01 4.130E-01 3.928E-02 8.500E-06 2.872E-16
0.000E+00
0Th-228+D   Th-228+D   1.000E+00  6.240E-01 4.343E-01 2.104E-01 1.666E-02 1.187E-05 1.147E-16 0.000E+00
0.000E+00
0Th-230     Th-230     1.000E+00  3.210E-03 3.210E-03 3.210E-03 3.210E-03 3.208E-03 3.204E-03 3.191E-03
3.147E-03
 Th-230     Ra-226+D   1.000E+00  1.763E-04 5.287E-04 1.233E-03 3.693E-03 1.068E-02 3.463E-02 9.894E-02
2.823E-01
 Th-230     Pb-210+D   1.000E+00  4.679E-08 3.246E-07 1.681E-06 1.401E-05 9.768E-05 6.218E-04 2.288E-03
7.076E-03
 Th-230     äDSR(j)               3.387E-03 3.739E-03 4.445E-03 6.917E-03 1.398E-02 3.845E-02 1.044E-01
2.925E-01
0Th-232     Th-232     1.000E+00  1.566E-02 1.566E-02 1.566E-02 1.566E-02 1.566E-02 1.565E-02 1.561E-02
1.549E-02
 Th-232     Ra-228+D   1.000E+00  2.534E-02 7.215E-02 1.504E-01 3.140E-01 4.263E-01 4.370E-01 4.361E-01
4.327E-01
 Th-232     Th-228+D   1.000E+00  4.809E-03 2.951E-02 1.173E-01 4.375E-01 7.154E-01 7.430E-01 7.414E-01
7.356E-01
 Th-232     äDSR(j)               4.582E-02 1.173E-01 2.834E-01 7.672E-01 1.157E+00 1.196E+00 1.193E+00
1.184E+00
0U-234      U-234      1.000E+00  1.465E-03 1.465E-03 1.465E-03 1.465E-03 1.463E-03 1.459E-03 1.447E-03
1.404E-03
 U-234      Th-230     1.000E+00  1.445E-08 4.335E-08 1.011E-07 3.033E-07 8.806E-07 2.895E-06 8.602E-06
2.802E-05
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 U-234      Ra-226+D   1.000E+00  5.289E-10 3.702E-09 1.956E-08 1.748E-07 1.469E-06 1.576E-05 1.363E-04
1.349E-03
 U-234      Pb-210+D   1.000E+00  1.055E-13 1.571E-12 1.806E-11 4.540E-10 9.613E-09 2.263E-07 2.850E-06
3.271E-05
 U-234      äDSR(j)               1.465E-03 1.465E-03 1.465E-03 1.465E-03 1.466E-03 1.478E-03 1.594E-03
2.814E-03
0U-235+D    U-235+D    1.000E+00  5.690E-02 5.690E-02 5.689E-02 5.687E-02 5.683E-02 5.667E-02 5.622E-02
5.466E-02
 U-235+D    Pa-231     1.000E+00  5.276E-07 1.583E-06 3.693E-06 1.108E-05 3.214E-05 1.056E-04 3.131E-04
1.012E-03
 U-235+D    Ac-227+D   1.000E+00  2.461E-08 1.707E-07 8.841E-07 7.363E-06 5.130E-05 3.277E-04 1.243E-03
4.344E-03
 U-235+D    äDSR(j)               5.690E-02 5.690E-02 5.690E-02 5.689E-02 5.691E-02 5.710E-02 5.777E-02
6.002E-02
0U-238      U-238      5.400E-05  7.002E-08 7.002E-08 7.002E-08 7.000E-08 6.994E-08 6.974E-08 6.919E-08
6.728E-08
0U-238+D    U-238+D    9.999E-01  1.235E-02 1.235E-02 1.235E-02 1.234E-02 1.233E-02 1.230E-02 1.220E-02
1.186E-02
 U-238+D    U-234      9.999E-01  2.077E-09 6.230E-09 1.454E-08 4.360E-08 1.265E-07 4.157E-07 1.233E-06
3.987E-06
 U-238+D    Th-230     9.999E-01  1.365E-14 9.557E-14 5.051E-13 4.518E-12 3.807E-11 4.123E-10 3.661E-09
3.962E-08
 U-238+D    Ra-226+D   9.999E-01  3.748E-16 5.622E-15 6.557E-14 1.737E-12 4.238E-11 1.502E-09 3.907E-08
1.315E-06
 U-238+D    Pb-210+D   9.999E-01  5.987E-20 1.846E-18 4.594E-17 3.441E-15 2.171E-13 1.809E-11 7.471E-10
3.089E-08
 U-238+D    äDSR(j)               1.235E-02 1.235E-02 1.235E-02 1.234E-02 1.233E-02 1.230E-02 1.220E-02
1.187E-02
 ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍÍ
 The DSR includes contributions from associated (half-life ó 180 days) daughters.

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 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                         Single Radionuclide Soil Guidelines G(i,t) in pCi/g

                            Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide
   (i)    t= 0.000E+00   1.000E+00   3.000E+00   1.000E+01   3.000E+01   1.000E+02   3.000E+02   1.000E+03
 ÄÄÄÄÄÄÄ     ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ
 Ac-227      1.150E+02   1.187E+02   1.265E+02   1.581E+02   2.990E+02   2.781E+03   1.628E+06  *7.232E+13

 Pa-231      4.686E+02   4.155E+02   3.417E+02   2.220E+02   1.337E+02   9.588E+01   9.352E+01   9.650E+01

 Pb-210      1.208E+03   1.247E+03   1.327E+03   1.651E+03   3.081E+03   2.736E+04   1.403E+07  *7.634E+13
```

Ra-226	3.071E+01	3.070E+01	3.068E+01	3.064E+01	3.065E+01	3.133E+01	3.417E+01	4.651E+01
Ra-228	4.742E+01	3.874E+01	3.555E+01	6.053E+01	6.365E+02	2.941E+06	*2.726E+14	*2.726E+14
Th-228	4.006E+01	5.756E+01	1.188E+02	1.501E+03	2.106E+06	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	7.382E+03	6.686E+03	5.625E+03	3.614E+03	1.788E+03	6.502E+02	2.394E+02	8.547E+01
Th-232	5.457E+02	2.131E+02	8.822E+01	3.259E+01	2.160E+01	2.091E+01	2.095E+01	2.112E+01
U-234	1.706E+04	1.706E+04	1.706E+04	1.706E+04	1.706E+04	1.692E+04	1.568E+04	8.885E+03
U-235	4.394E+02	4.394E+02	4.394E+02	4.394E+02	4.393E+02	4.378E+02	4.327E+02	4.165E+02
U-238	2.025E+03	2.025E+03	2.025E+03	2.026E+03	2.027E+03	2.033E+03	2.049E+03	2.107E+03
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ

*At specific activity limit

0

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ
Ac-227	1.000E+00	0.000E+00	2.175E-01	1.150E+02	2.175E-01	1.150E+02
Pa-231	1.000E+00	199.4 ñ 0.4	2.682E-01	9.323E+01	5.335E-02	4.686E+02
Pb-210	1.000E+00	0.000E+00	2.069E-02	1.208E+03	2.069E-02	1.208E+03
Ra-226	1.000E+00	18.70 ñ 0.04	8.164E-01	3.062E+01	8.140E-01	3.071E+01
Ra-228	1.000E+00	2.702 ñ 0.005	7.045E-01	3.549E+01	5.272E-01	4.742E+01
Th-228	1.000E+00	0.000E+00	6.240E-01	4.006E+01	6.240E-01	4.006E+01
Th-230	1.000E+00	1.000E+03	2.925E-01	8.547E+01	3.387E-03	7.382E+03
Th-232	1.000E+00	79.2 ñ 0.2	1.196E+00	2.090E+01	4.582E-02	5.457E+02
U-234	1.000E+00	1.000E+03	2.814E-03	8.885E+03	1.465E-03	1.706E+04
U-235	1.000E+00	1.000E+03	6.002E-02	4.165E+02	5.690E-02	4.394E+02
U-238	1.000E+00	0.000E+00	1.235E-02	2.025E+03	1.235E-02	2.025E+03
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ

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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02

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1.000E+03
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    2.175E-01 2.107E-01 1.977E-01 1.581E-01 8.362E-02 8.988E-03 1.535E-05
3.162E-15
 Ac-227  Pa-231  1.000E+00    3.480E-03 1.029E-02 2.329E-02 6.275E-02 1.371E-01 2.111E-01 2.181E-01
2.114E-01
 Ac-227  U-235   1.000E+00    2.461E-08 1.707E-07 8.841E-07 7.363E-06 5.130E-05 3.277E-04 1.243E-03
4.344E-03
 Ac-227  äDOSE(j)             2.210E-01 2.210E-01 2.209E-01 2.209E-01 2.208E-01 2.204E-01 2.194E-01
2.157E-01
0Pa-231  Pa-231  1.000E+00    4.987E-02 4.987E-02 4.987E-02 4.985E-02 4.981E-02 4.965E-02 4.921E-02
4.769E-02
 Pa-231  U-235   1.000E+00    5.276E-07 1.583E-06 3.693E-06 1.108E-05 3.214E-05 1.056E-04 3.131E-04
1.012E-03
 Pa-231  äDOSE(j)             4.988E-02 4.987E-02 4.987E-02 4.986E-02 4.984E-02 4.976E-02 4.952E-02
4.870E-02
0Pb-210  Pb-210  1.000E+00    2.069E-02 2.005E-02 1.884E-02 1.514E-02 8.114E-03 9.137E-04 1.782E-06
5.836E-16
 Pb-210  Ra-226  1.000E+00    3.232E-04 9.560E-04 2.163E-03 5.833E-03 1.275E-02 1.939E-02 1.860E-02
1.367E-02
 Pb-210  Th-230  1.000E+00    4.679E-08 3.246E-07 1.681E-06 1.401E-05 9.768E-05 6.218E-04 2.288E-03
7.076E-03
 Pb-210  U-234   1.000E+00    1.055E-13 1.571E-12 1.806E-11 4.540E-10 9.613E-09 2.263E-07 2.850E-06
3.271E-05
 Pb-210  U-238   9.999E-01    5.987E-20 1.846E-18 4.594E-17 3.441E-15 2.171E-13 1.809E-11 7.471E-10
3.089E-08
 Pb-210  äDOSE(j)             2.101E-02 2.101E-02 2.101E-02 2.099E-02 2.096E-02 2.093E-02 2.089E-02
2.078E-02
0Ra-226  Ra-226  1.000E+00    8.137E-01 8.133E-01 8.126E-01 8.101E-01 8.030E-01 7.786E-01 7.130E-01
5.239E-01
 Ra-226  Th-230  1.000E+00    1.763E-04 5.287E-04 1.233E-03 3.693E-03 1.068E-02 3.463E-02 9.894E-02
2.823E-01
 Ra-226  U-234   1.000E+00    5.289E-10 3.702E-09 1.956E-08 1.748E-07 1.469E-06 1.576E-05 1.363E-04
1.349E-03
 Ra-226  U-238   9.999E-01    3.748E-16 5.622E-15 6.557E-14 1.737E-12 4.238E-11 1.502E-09 3.907E-08
1.315E-06
 Ra-226  äDOSE(j)             8.139E-01 8.139E-01 8.138E-01 8.138E-01 8.137E-01 8.133E-01 8.121E-01
8.075E-01
0Ra-228  Ra-228  1.000E+00    4.122E-01 3.654E-01 2.871E-01 1.235E-01 1.108E-02 2.396E-06 8.096E-17
0.000E+00
 Ra-228  Th-232  1.000E+00    2.534E-02 7.215E-02 1.504E-01 3.140E-01 4.263E-01 4.370E-01 4.361E-01
4.327E-01
 Ra-228  äDOSE(j)             4.375E-01 4.375E-01 4.375E-01 4.375E-01 4.374E-01 4.371E-01 4.361E-01
4.327E-01
0Th-228  Ra-228  1.000E+00    1.150E-01 2.800E-01 4.161E-01 2.896E-01 2.820E-02 6.104E-06 2.063E-16
0.000E+00
 Th-228  Th-228  1.000E+00    6.240E-01 4.343E-01 2.104E-01 1.666E-02 1.187E-05 1.147E-16 0.000E+00
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0.000E+00
 Th-228  Th-232  1.000E+00    4.809E-03 2.951E-02 1.173E-01 4.375E-01 7.154E-01 7.430E-01 7.414E-01
7.356E-01
 Th-228  äDOSE(j)            7.439E-01 7.438E-01 7.438E-01 7.438E-01 7.436E-01 7.431E-01 7.414E-01
7.356E-01
0Th-230  Th-230  1.000E+00    3.210E-03 3.210E-03 3.210E-03 3.210E-03 3.208E-03 3.204E-03 3.191E-03
3.147E-03
 Th-230  U-234   1.000E+00    1.445E-08 4.335E-08 1.011E-07 3.033E-07 8.806E-07 2.895E-06 8.602E-06
2.802E-05
 Th-230  U-238   9.999E-01    1.365E-14 9.557E-14 5.051E-13 4.518E-12 3.807E-11 4.123E-10 3.661E-09
3.962E-08
 Th-230  äDOSE(j)            3.210E-03 3.210E-03 3.210E-03 3.210E-03 3.209E-03 3.207E-03 3.200E-03
3.175E-03
0Th-232  Th-232  1.000E+00    1.566E-02 1.566E-02 1.566E-02 1.566E-02 1.566E-02 1.565E-02 1.561E-02
1.549E-02
0U-234   U-234   1.000E+00    1.465E-03 1.465E-03 1.465E-03 1.465E-03 1.463E-03 1.459E-03 1.447E-03
1.404E-03
 U-234   U-238   9.999E-01    2.077E-09 6.230E-09 1.454E-08 4.360E-08 1.265E-07 4.157E-07 1.233E-06
3.987E-06
 U-234   äDOSE(j)            1.465E-03 1.465E-03 1.465E-03 1.465E-03 1.464E-03 1.459E-03 1.448E-03
1.408E-03
0U-235   U-235   1.000E+00    5.690E-02 5.690E-02 5.689E-02 5.687E-02 5.683E-02 5.667E-02 5.622E-02
5.466E-02
0U-238   U-238   5.400E-05    7.002E-08 7.002E-08 7.002E-08 7.000E-08 6.994E-08 6.974E-08 6.919E-08
6.728E-08
 U-238   U-238   9.999E-01    1.235E-02 1.235E-02 1.235E-02 1.234E-02 1.233E-02 1.230E-02 1.220E-02
1.186E-02
 U-238   äDOSE(j)            1.235E-02 1.235E-02 1.235E-02 1.234E-02 1.233E-02 1.230E-02 1.220E-02
1.186E-02
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ÍÍÍÍÍÍÍÍÍ
 THF(i) is the thread fraction of the parent nuclide.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  24
 Summary : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                                   Individual Nuclide Soil Concentration
                                 Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                        S(j,t), pCi/g
   (j)     (i)             t= 0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02
1.000E+03
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    1.000E+00 9.686E-01 9.088E-01 7.272E-01 3.845E-01 4.133E-02 7.059E-05
1.454E-14
 Ac-227  Pa-231  1.000E+00    0.000E+00 3.133E-02 9.108E-02 2.726E-01 6.145E-01 9.547E-01 9.871E-01
9.567E-01
 Ac-227  U-235   1.000E+00    0.000E+00 3.332E-07 2.937E-06 3.036E-05 2.256E-04 1.473E-03 5.613E-03
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1.965E-02
 Ac-227  äS(j):                1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.992E-01 9.975E-01 9.928E-01
9.763E-01
0Pa-231  Pa-231  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.987E-01 9.955E-01 9.866E-01
9.561E-01
 Pa-231  U-235   1.000E+00    0.000E+00 2.116E-05 6.347E-05 2.115E-04 6.339E-04 2.107E-03 6.267E-03
2.028E-02
 Pa-231  äS(j):                1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.976E-01 9.929E-01
9.764E-01
0Pb-210  Pb-210  1.000E+00    1.000E+00 9.693E-01 9.106E-01 7.320E-01 3.922E-01 4.416E-02 8.612E-05
2.821E-14
 Pb-210  Ra-226  1.000E+00    0.000E+00 3.060E-02 8.896E-02 2.664E-01 6.009E-01 9.224E-01 8.854E-01
6.506E-01
 Pb-210  Th-230  1.000E+00    0.000E+00 6.662E-06 5.872E-05 6.074E-04 4.518E-03 2.939E-02 1.087E-01
3.366E-01
 Pb-210  U-234   1.000E+00    0.000E+00 2.004E-11 5.327E-10 1.870E-08 4.367E-07 1.064E-05 1.351E-04
1.555E-03
 Pb-210  U-238   9.999E-01    0.000E+00 1.423E-17 1.138E-15 1.345E-13 9.692E-12 8.454E-10 3.536E-08
1.468E-06
 Pb-210  äS(j):                1.000E+00 9.999E-01 9.997E-01 9.990E-01 9.977E-01 9.959E-01 9.943E-01
9.888E-01
0Ra-226  Ra-226  1.000E+00    1.000E+00 9.996E-01 9.987E-01 9.956E-01 9.869E-01 9.569E-01 8.763E-01
6.439E-01
 Ra-226  Th-230  1.000E+00    0.000E+00 4.331E-04 1.299E-03 4.322E-03 1.291E-02 4.234E-02 1.214E-01
3.467E-01
 Ra-226  U-234   1.000E+00    0.000E+00 1.950E-09 1.754E-08 1.947E-07 1.746E-06 1.918E-05 1.669E-04
1.656E-03
 Ra-226  U-238   9.999E-01    0.000E+00 1.842E-15 4.973E-14 1.840E-12 4.955E-11 1.818E-09 4.778E-08
1.613E-06
 Ra-226  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.978E-01
9.922E-01
0Ra-228  Ra-228  1.000E+00    1.000E+00 8.864E-01 6.965E-01 2.995E-01 2.687E-02 5.813E-06 1.964E-16
0.000E+00
 Ra-228  Th-232  1.000E+00    0.000E+00 1.136E-01 3.035E-01 7.004E-01 9.728E-01 9.989E-01 9.967E-01
9.890E-01
 Ra-228  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0Th-228  Ra-228  1.000E+00    0.000E+00 2.853E-01 5.384E-01 4.089E-01 4.024E-02 8.711E-06 2.943E-16
0.000E+00
 Th-228  Th-228  1.000E+00    1.000E+00 6.961E-01 3.372E-01 2.670E-02 1.902E-05 1.838E-16 0.000E+00
0.000E+00
 Th-228  Th-232  1.000E+00    0.000E+00 1.864E-02 1.243E-01 5.643E-01 9.594E-01 9.989E-01 9.967E-01
9.890E-01
 Th-228  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0Th-230  Th-230  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.994E-01 9.980E-01 9.940E-01
9.802E-01
 Th-230  U-234   1.000E+00    0.000E+00 9.002E-06 2.700E-05 8.999E-05 2.698E-04 8.974E-04 2.675E-03
```

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8.723E-03
 Th-230  U-238   9.999E-01    0.000E+00 1.276E-11 1.148E-10 1.275E-09 1.147E-08 1.272E-07 1.137E-06
1.233E-05
 Th-230  äS(j):               1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.889E-01
0Th-232  Th-232  1.000E+00    1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0U-234   U-234   1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.987E-01 9.957E-01 9.872E-01
9.580E-01
 U-234   U-238   9.999E-01    0.000E+00 2.835E-06 8.503E-06 2.834E-05 8.494E-05 2.823E-04 8.399E-04
2.720E-03
 U-234   äS(j):               1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
0U-235   U-235   1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
0U-238   U-238   5.400E-05    5.400E-05 5.400E-05 5.399E-05 5.398E-05 5.394E-05 5.378E-05 5.336E-05
5.188E-05
 U-238   U-238   9.999E-01    9.999E-01 9.999E-01 9.998E-01 9.995E-01 9.987E-01 9.960E-01 9.880E-01
9.607E-01
 U-238   äS(j):               1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ    ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍ
 THF(i) is the thread fraction of the parent nuclide.
0RESCALC.EXE execution time =    6.51 seconds
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Appendix G-2
RESRAD Risk Output for Trespasser Youth

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Table of Contents
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Part III: Intake Quantities and Health Risk Factors
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Cancer Risk Slope Factors 2
Risk Slope and ETFG for the Ground Pathway 4
Amount of Intake Quantities and Excess Cancer Risks
Time= 0.000E+00 5
Time= 1.000E+00 9
Time= 3.000E+00 13
Time= 1.000E+01 17
Time= 3.000E+01 21
Time= 1.000E+02 25
Time= 3.000E+02 29
Time= 1.000E+03 33

Cancer Risk Slope Factors Summary Table
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-1	Ground external radiation slope factors, 1/yr per (pCi/g):			
Sf-1	Ac-227+D	1.47E-06	3.48E-10	SLPF(1,1)
Sf-1	Pa-231	1.39E-07	1.39E-07	SLPF(2,1)
Sf-1	Pb-210+D	4.21E-09	1.41E-09	SLPF(3,1)
Sf-1	Ra-226+D	8.49E-06	2.29E-08	SLPF(4,1)
Sf-1	Ra-228+D	4.53E-06	0.00E+00	SLPF(5,1)
Sf-1	Th-228+D	7.76E-06	5.59E-09	SLPF(6,1)
Sf-1	Th-230	8.19E-10	8.19E-10	SLPF(7,1)
Sf-1	Th-232	3.42E-10	3.42E-10	SLPF(8,1)
Sf-1	U-234	2.52E-10	2.52E-10	SLPF(9,1)
Sf-1	U-235+D	5.43E-07	5.18E-07	SLPF(10,1)
Sf-1	U-238	4.99E-11	4.99E-11	SLPF(11,1)
Sf-1	U-238+D	1.14E-07	4.99E-11	SLPF(12,1)
Sf-2	Inhalation, slope factors, 1/(pCi):			

Sf-2	Ac-227+D	2.13E-07	1.49E-07	SLPF(1,2)
Sf-2	Pa-231	7.62E-08	7.62E-08	SLPF(2,2)
Sf-2	Pb-210+D	3.08E-08	1.58E-08	SLPF(3,2)
Sf-2	Ra-226+D	2.83E-08	2.82E-08	SLPF(4,2)
Sf-2	Ra-228+D	4.37E-08	4.37E-08	SLPF(5,2)
Sf-2	Th-228+D	1.44E-07	1.32E-07	SLPF(6,2)
Sf-2	Th-230	3.40E-08	3.40E-08	SLPF(7,2)
Sf-2	Th-232	4.33E-08	4.33E-08	SLPF(8,2)
Sf-2	U-234	2.78E-08	2.78E-08	SLPF(9,2)
Sf-2	U-235+D	2.50E-08	2.50E-08	SLPF(10,2)
Sf-2	U-238	2.36E-08	2.36E-08	SLPF(11,2)
Sf-2	U-238+D	2.36E-08	2.36E-08	SLPF(12,2)
Sf-3	Food ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	6.53E-10	2.45E-10	SLPF(1,3)
Sf-3	Pa-231	2.26E-10	2.26E-10	SLPF(2,3)
Sf-3	Pb-210+D	3.44E-09	1.18E-09	SLPF(3,3)
Sf-3	Ra-226+D	5.15E-10	5.14E-10	SLPF(4,3)
Sf-3	Ra-228+D	1.43E-09	1.43E-09	SLPF(5,3)
Sf-3	Th-228+D	4.22E-10	1.48E-10	SLPF(6,3)
Sf-3	Th-230	1.19E-10	1.19E-10	SLPF(7,3)
Sf-3	Th-232	1.33E-10	1.33E-10	SLPF(8,3)
Sf-3	U-234	9.55E-11	9.55E-11	SLPF(9,3)
Sf-3	U-235+D	9.76E-11	9.44E-11	SLPF(10,3)
Sf-3	U-238	8.66E-11	8.66E-11	SLPF(11,3)
Sf-3	U-238+D	1.21E-10	8.66E-11	SLPF(12,3)
Sf-3	Water ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	4.86E-10	2.01E-10	SLPF(1,4)
Sf-3	Pa-231	1.73E-10	1.73E-10	SLPF(2,4)
Sf-3	Pb-210+D	2.66E-09	8.81E-10	SLPF(3,4)
Sf-3	Ra-226+D	3.86E-10	3.85E-10	SLPF(4,4)
Sf-3	Ra-228+D	1.04E-09	1.04E-09	SLPF(5,4)
Sf-3	Th-228+D	2.99E-10	1.07E-10	SLPF(6,4)
Sf-3	Th-230	9.10E-11	9.10E-11	SLPF(7,4)

Cancer Risk Slope Factors Summary Table (continued)
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name

```
 Sf-3  ³ Th-232                                           ³ 1.01E-10  ³ 1.01E-10  ³ SLPF(  8,4)
 Sf-3  ³ U-234                                            ³ 7.07E-11  ³ 7.07E-11  ³ SLPF(  9,4)
 Sf-3  ³ U-235+D                                          ³ 7.18E-11  ³ 6.96E-11  ³ SLPF( 10,4)
 Sf-3  ³ U-238                                            ³ 6.40E-11  ³ 6.40E-11  ³ SLPF( 11,4)
 Sf-3  ³ U-238+D                                          ³ 8.71E-11  ³ 6.40E-11  ³ SLPF( 12,4)
       ³                                                  ³           ³           ³
 Sf-3  ³ Soil ingestion, slope factors, 1/(pCi):          ³           ³           ³
 Sf-3  ³ Ac-227+D                                         ³ 6.53E-10  ³ 2.45E-10  ³ SLPF(  1,5)
 Sf-3  ³ Pa-231                                           ³ 2.26E-10  ³ 2.26E-10  ³ SLPF(  2,5)
 Sf-3  ³ Pb-210+D                                         ³ 3.44E-09  ³ 1.18E-09  ³ SLPF(  3,5)
 Sf-3  ³ Ra-226+D                                         ³ 5.15E-10  ³ 5.14E-10  ³ SLPF(  4,5)
 Sf-3  ³ Ra-228+D                                         ³ 1.43E-09  ³ 1.43E-09  ³ SLPF(  5,5)
 Sf-3  ³ Th-228+D                                         ³ 4.22E-10  ³ 1.48E-10  ³ SLPF(  6,5)
 Sf-3  ³ Th-230                                           ³ 1.19E-10  ³ 1.19E-10  ³ SLPF(  7,5)
 Sf-3  ³ Th-232                                           ³ 1.33E-10  ³ 1.33E-10  ³ SLPF(  8,5)
 Sf-3  ³ U-234                                            ³ 9.55E-11  ³ 9.55E-11  ³ SLPF(  9,5)
 Sf-3  ³ U-235+D                                          ³ 9.76E-11  ³ 9.44E-11  ³ SLPF( 10,5)
 Sf-3  ³ U-238                                            ³ 8.66E-11  ³ 8.66E-11  ³ SLPF( 11,5)
 Sf-3  ³ U-238+D                                          ³ 1.21E-10  ³ 8.66E-11  ³ SLPF( 12,5)
       ³                                                  ³           ³           ³
 Sf-Rn ³ Radon Inhalation slope factors, 1/(pCi):         ³           ³           ³
 Sf-Rn ³ Rn-222                                           ³ 1.80E-12  ³ 1.80E-12  ³ SLPFRN(1,1)
 Sf-Rn ³ Po-218                                           ³ 3.70E-12  ³ 3.70E-12  ³ SLPFRN(1,2)
 Sf-Rn ³ Pb-214                                           ³ 6.20E-12  ³ 6.20E-12  ³ SLPFRN(1,3)
 Sf-Rn ³ Bi-214                                           ³ 1.50E-11  ³ 1.50E-11  ³ SLPFRN(1,4)
 Sf-Rn ³ Rn-220                                           ³ 1.90E-13  ³ 1.90E-13  ³ SLPFRN(2,1)
 Sf-Rn ³ Po-216                                           ³ 3.00E-15  ³ 3.00E-15  ³ SLPFRN(2,2)
 Sf-Rn ³ Pb-212                                           ³ 3.90E-11  ³ 3.90E-11  ³ SLPFRN(2,3)
 Sf-Rn ³ Bi-212                                           ³ 3.70E-11  ³ 3.70E-11  ³ SLPFRN(2,4)
       ³                                                  ³           ³           ³
 Sf-Rn ³ Radon K factors, (mrem/WLM):                     ³           ³           ³
 Sf-Rn ³ Rn-222 Indoor                                    ³ 7.60E+02  ³ 7.60E+02  ³ KFACTR(1,1)
 Sf-Rn ³ Rn-222 Outdoor                                   ³ 5.70E+02  ³ 5.70E+02  ³ KFACTR(1,2)
 Sf-Rn ³ Rn-220 Indoor                                    ³ 1.50E+02  ³ 1.50E+02  ³ KFACTR(2,1)
 Sf-Rn ³ Rn-220 Outdoor                                   ³ 2.50E+02  ³ 2.50E+02  ³ KFACTR(2,2)
 ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
 *Base Case means Default.Lib w/o Associate Nuclide contributions.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page   4
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                      Risk Slope and Environmental Transport Factors for the Ground Pathway

0Nuclide  Slope(i)*                         ETFG(i,t) At Time in Years  (dimensionless)
```

(i)		t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Ac-227	3.480E-10	7.367E-02	7.367E-02	7.367E-02	7.367E-02	7.367E-02	7.367E-02	7.367E-02	7.367E-02
Ac-228	4.530E-06	7.251E-02	7.251E-02	7.251E-02	7.251E-02	7.251E-02	7.251E-02	7.251E-02	7.251E-02
At-218	3.570E-09	7.471E-02	7.471E-02	7.471E-02	7.471E-02	7.471E-02	7.471E-02	7.471E-02	7.471E-02
Bi-210	2.760E-09	7.276E-02	7.276E-02	7.276E-02	7.276E-02	7.276E-02	7.276E-02	7.276E-02	7.276E-02
Bi-211	1.880E-07	7.279E-02	7.279E-02	7.279E-02	7.279E-02	7.279E-02	7.279E-02	7.279E-02	7.279E-02
Bi-212	8.870E-07	7.220E-02	7.220E-02	7.220E-02	7.220E-02	7.220E-02	7.220E-02	7.220E-02	7.220E-02
Bi-214	7.480E-06	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02
Fr-223	1.400E-07	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02
Pa-231	1.390E-07	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02
Pa-234	8.710E-06	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02	7.238E-02
Pa-234m	6.870E-08	7.232E-02	7.232E-02	7.232E-02	7.232E-02	7.232E-02	7.232E-02	7.232E-02	7.232E-02
Pb-210	1.410E-09	7.556E-02	7.556E-02	7.556E-02	7.556E-02	7.556E-02	7.556E-02	7.556E-02	7.556E-02
Pb-211	2.290E-07	7.237E-02	7.237E-02	7.237E-02	7.237E-02	7.237E-02	7.237E-02	7.237E-02	7.237E-02
Pb-212	5.090E-07	7.326E-02	7.326E-02	7.326E-02	7.326E-02	7.326E-02	7.326E-02	7.326E-02	7.326E-02
Pb-214	9.820E-07	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02	7.281E-02
Po-210	3.950E-11	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02
Po-211	3.580E-08	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02
Po-212	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-214	3.860E-10	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02	7.207E-02
Po-215	7.480E-10	7.246E-02	7.246E-02	7.246E-02	7.246E-02	7.246E-02	7.246E-02	7.246E-02	7.246E-02
Po-216	7.870E-11	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02
Po-218	4.260E-11	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02	7.230E-02
Ra-223	4.340E-07	7.312E-02	7.312E-02	7.312E-02	7.312E-02	7.312E-02	7.312E-02	7.312E-02	7.312E-02
Ra-224	3.720E-08	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02	7.316E-02
Ra-226	2.290E-08	7.333E-02	7.333E-02	7.333E-02	7.333E-02	7.333E-02	7.333E-02	7.333E-02	7.333E-02
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rn-219	2.250E-07	7.285E-02	7.285E-02	7.285E-02	7.285E-02	7.285E-02	7.285E-02	7.285E-02	7.285E-02
Rn-220	1.700E-09	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02
Rn-222	1.740E-09	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02	7.215E-02
Th-227	3.780E-07	7.321E-02	7.321E-02	7.321E-02	7.321E-02	7.321E-02	7.321E-02	7.321E-02	7.321E-02
Th-228	5.590E-09	7.354E-02	7.354E-02	7.354E-02	7.354E-02	7.354E-02	7.354E-02	7.354E-02	7.354E-02
Th-230	8.190E-10	7.382E-02	7.382E-02	7.382E-02	7.382E-02	7.382E-02	7.382E-02	7.382E-02	7.382E-02
Th-231	2.450E-08	7.391E-02	7.391E-02	7.391E-02	7.391E-02	7.391E-02	7.391E-02	7.391E-02	7.391E-02
Th-232	3.420E-10	7.420E-02	7.420E-02	7.420E-02	7.420E-02	7.420E-02	7.420E-02	7.420E-02	7.420E-02
Th-234	1.630E-08	7.400E-02	7.400E-02	7.400E-02	7.400E-02	7.400E-02	7.400E-02	7.400E-02	7.400E-02
Tl-207	1.520E-08	7.240E-02	7.240E-02	7.240E-02	7.240E-02	7.240E-02	7.240E-02	7.240E-02	7.240E-02
Tl-208	1.760E-05	7.258E-02	7.258E-02	7.258E-02	7.258E-02	7.258E-02	7.258E-02	7.258E-02	7.257E-02
Tl-210	0.000E+00	7.700E-02	7.700E-02	7.700E-02	7.700E-02	7.700E-02	7.700E-02	7.700E-02	7.700E-02
U-234	2.520E-10	7.425E-02	7.425E-02	7.425E-02	7.425E-02	7.425E-02	7.425E-02	7.425E-02	7.425E-02
U-235	5.180E-07	7.330E-02	7.330E-02	7.330E-02	7.330E-02	7.330E-02	7.330E-02	7.330E-02	7.330E-02

U-238	4.990E-11	7.632E-02	7.632E-02	7.632E-02	7.632E-02	7.632E-02	7.632E-02	7.632E-02	7.632E-02

* - Units are 1/yr per (pCi/g) at infinite depth and area. Multiplication by ETFG(i,t) converts to site conditions.

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Intrisk : TTLF Recreational Youth - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 0.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)				Water Dependent Pathways					
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Pa-231	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Pb-210	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Ra-226	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Ra-228	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-228	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-230	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-232	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-234	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-235	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-238	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.811E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.811E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 0.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Youth - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.284E-06	0.0631	1.238E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.202E-08	0.0011
Pa-231	1.214E-07	0.0060	4.434E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.621E-09	0.0004
Pb-210	3.720E-09	0.0002	1.789E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.160E-07	0.0057
Ra-226	7.377E-06	0.3625	1.645E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.736E-08	0.0009
Ra-228	3.941E-06	0.1937	2.546E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.832E-08	0.0024
Th-228	6.762E-06	0.3323	8.381E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.425E-08	0.0007
Th-230	7.255E-10	0.0000	1.978E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.013E-09	0.0002

```
 Th-232  3.045E-10 0.0000  2.520E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.485E-09
0.0002
 U-234   2.245E-10 0.0000  1.617E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.220E-09
0.0002
 U-235   4.773E-07 0.0235  1.455E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.292E-09
0.0002
 U-238   9.894E-08 0.0049  1.375E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.067E-09
0.0002
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ÍÍÍÍÍÍ
 Total   2.007E-05 0.9860  4.012E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.447E-07
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.318E-06
0.0648
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.335E-07
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.216E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.396E-06
0.3634
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.992E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.785E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.717E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.309E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.062E-09
```

```
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.820E-07
0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.044E-07
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.035E-05
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 0.000E+00 years
0                                                   Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                              and Fraction of Total Risk at t= 0.000E+00 years
0                                           Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.067E-06 0.0524  1.029E-08 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.830E-08 0.0009
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 Pa-231  3.382E-07 0.0166  6.524E-09 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.134E-08 0.0006
 Pb-210  3.105E-09 0.0002  1.493E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.686E-08 0.0048
 Ra-226  7.358E-06 0.3616  1.936E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.647E-08 0.0018
 Ra-228  5.138E-06 0.2525  5.132E-09 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.198E-08 0.0016
 Th-228  1.536E-06 0.0755  1.904E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.236E-09 0.0002
 Th-230  1.987E-08 0.0010  1.983E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.092E-09 0.0002
 Th-232  4.030E-06 0.1980  6.411E-09 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.184E-08 0.0016
 U-234   2.252E-10 0.0000  1.617E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.220E-09 0.0002
 U-235   4.773E-07 0.0235  1.455E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.294E-09 0.0002
 U-238   9.894E-08 0.0049  1.375E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.067E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.007E-05 0.9860  4.012E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.447E-07 0.0120
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 0.000E+00 years

                                                   Water Dependent Pathways

              Water               Fish               Radon             Plant               Meat               Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.096E-06 0.0538
```

```
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.560E-07 0.0175
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.015E-07 0.0050
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.397E-06 0.3634
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.175E-06 0.2543
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.541E-06 0.0757
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.594E-08 0.0013
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.068E-06 0.1999
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.063E-09 0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.820E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.044E-07 0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.035E-05 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
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                         Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                            As pCi/yr at t= 1.000E+00 years

           Water Independent Pathways (Inhalation w/o radon)                  Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    4.849E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.810E+00
 Pa-231    4.849E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
```

0.000E+00 2.810E+00

Pb-210	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Ra-226	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Ra-228	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-228	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-230	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-232	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-234	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-235	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-238	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+00 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

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File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	1.284E-06	0.0631	1.238E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.202E-08
Pa-231	1.214E-07	0.0060	4.434E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.621E-09
Pb-210	3.720E-09	0.0002	1.788E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.160E-07
Ra-226	7.377E-06	0.3625	1.645E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.736E-08
Ra-228	3.941E-06	0.1937	2.546E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.832E-08
Th-228	6.762E-06	0.3323	8.381E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.424E-08
Th-230	7.255E-10	0.0000	1.978E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.013E-09
Th-232	3.045E-10	0.0000	2.520E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.485E-09
U-234	2.245E-10	0.0000	1.617E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.220E-09
U-235	4.772E-07	0.0235	1.455E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.292E-09
U-238	9.894E-08	0.0049	1.375E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.067E-09
Total	2.007E-05	0.9860	4.012E-08	0.0020	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.447E-07

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.318E-06	0.0648
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.335E-07	0.0066
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.215E-07	0.0060
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.396E-06	0.3634
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.992E-06	0.1962
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.785E-06	0.3334
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.717E-09	0.0003
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.309E-09	0.0004
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.062E-09	0.0002
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.820E-07	0.0237
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.044E-07	0.0051
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.035E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+00 years

0

Radon Pathway	Radionuclides							
	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.034E-06 0.0508  9.971E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.773E-08 0.0009
 Pa-231  3.716E-07 0.0183  6.846E-09 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.191E-08 0.0006
 Pb-210  3.010E-09 0.0001  1.447E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.388E-08 0.0046
 Ra-226  7.355E-06 0.3614  1.981E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.942E-08 0.0019
 Ra-228  4.993E-06 0.2453  5.092E-09 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.927E-08 0.0014
 Th-228  1.069E-06 0.0525  1.325E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.252E-09 0.0001
 Th-230  2.305E-08 0.0011  1.984E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.109E-09 0.0002
 Th-232  4.642E-06 0.2281  7.029E-09 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.553E-08 0.0017
 U-234   2.254E-10 0.0000  1.617E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.220E-09 0.0002
 U-235   4.773E-07 0.0235  1.455E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.294E-09 0.0002
 U-238   9.894E-08 0.0049  1.375E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.067E-09 0.0002
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 Total   2.007E-05 0.9860  4.012E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.447E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  12
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+00 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.061E-06 0.0521
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.903E-07 0.0192
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.834E-08 0.0048
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.397E-06 0.3634
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.027E-06 0.2470
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.073E-06 0.0527
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.915E-08 0.0014
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.684E-06 0.2302
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.063E-09 0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.820E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.044E-07 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
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Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 2.035E-05 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Youth - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Pa-231	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Pb-210	4.848E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Ra-226	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Ra-228	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-228	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-230	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-232	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-234	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-235	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-238	4.849E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Youth - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.284E-06	0.0631	1.238E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.202E-08	0.0011
Pa-231	1.214E-07	0.0060	4.433E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.620E-09	0.0004
Pb-210	3.719E-09	0.0002	1.788E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.160E-07	0.0057
Ra-226	7.377E-06	0.3625	1.645E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.736E-08	0.0009
Ra-228	3.941E-06	0.1937	2.546E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.832E-08	0.0024
Th-228	6.762E-06	0.3323	8.380E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.424E-08	0.0007
Th-230	7.255E-10	0.0000	1.978E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.013E-09	0.0002

```
 Th-232  3.045E-10 0.0000  2.519E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.485E-09
0.0002
 U-234   2.244E-10 0.0000  1.617E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.220E-09
0.0002
 U-235   4.772E-07 0.0234  1.454E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.292E-09
0.0002
 U-238   9.893E-08 0.0049  1.375E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.066E-09
0.0002
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ÍÍÍÍÍÍ
 Total   2.007E-05 0.9860  4.012E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.447E-07
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+00 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.318E-06
0.0648
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.335E-07
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.215E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.396E-06
0.3634
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.992E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.785E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.717E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.309E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.061E-09
```

```
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.819E-07
0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.044E-07
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.035E-05
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+00 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                and Fraction of Total Risk at t= 3.000E+00 years
0                                             Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  9.698E-07 0.0477  9.355E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.663E-08 0.0008
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 Pa-231  4.353E-07 0.0214  7.461E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.300E-08 0.0006
 Pb-210  2.828E-09 0.0001  1.359E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.820E-08 0.0043
 Ra-226  7.349E-06 0.3611  2.066E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.504E-08 0.0022
 Ra-228  4.406E-06 0.2165  4.599E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.402E-08 0.0012
 Th-228  5.180E-07 0.0255  6.420E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.091E-09 0.0001
 Th-230  2.942E-08 0.0014  1.986E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.145E-09 0.0002
 Th-232  5.780E-06 0.2840  8.205E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.194E-08 0.0021
 U-234   2.258E-10 0.0000  1.617E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.220E-09 0.0002
 U-235   4.773E-07 0.0235  1.456E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.294E-09 0.0002
 U-238   9.893E-08 0.0049  1.375E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.066E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.007E-05 0.9860  4.012E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.447E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  16
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 3.000E+00 years

                                                   Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.958E-07 0.0489
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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.558E-07 0.0224
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.239E-08 0.0045
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.396E-06 0.3634
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.434E-06 0.2179
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.197E-07 0.0255
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.555E-08 0.0017
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.830E-06 0.2865
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.063E-09 0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.820E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.044E-07 0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.035E-05 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days       03/30/2011  09:17  Page  17
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                        Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                         As pCi/yr at t= 1.000E+01 years

           Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227    4.848E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.810E+00
 Pa-231    4.848E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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0.000E+00  2.810E+00
 Pb-210    4.845E-03  0.000E+00  0.000E+00  0.000E+00  2.808E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.808E+00
 Ra-226    4.849E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.810E+00
 Ra-228    4.849E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.810E+00
 Th-228    4.849E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.810E+00
 Th-230    4.849E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.810E+00
 Th-232    4.849E-03  0.000E+00  0.000E+00  0.000E+00  2.810E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.810E+00
 U-234     4.847E-03  0.000E+00  0.000E+00  0.000E+00  2.809E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.809E+00
 U-235     4.847E-03  0.000E+00  0.000E+00  0.000E+00  2.809E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.809E+00
 U-238     4.847E-03  0.000E+00  0.000E+00  0.000E+00  2.809E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.809E+00
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 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 1.000E+01 years
0                                                      Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
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                 Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  and Fraction of Total Risk at t= 1.000E+01 years
```

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	1.284E-06	0.0631	1.238E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.201E-08
Pa-231	1.214E-07	0.0060	4.433E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.619E-09
Pb-210	3.717E-09	0.0002	1.787E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.159E-07
Ra-226	7.376E-06	0.3625	1.645E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.736E-08
Ra-228	3.941E-06	0.1937	2.546E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.832E-08
Th-228	6.762E-06	0.3323	8.380E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.424E-08
Th-230	7.254E-10	0.0000	1.978E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.013E-09
Th-232	3.045E-10	0.0000	2.519E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.485E-09
U-234	2.244E-10	0.0000	1.617E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.219E-09
U-235	4.771E-07	0.0234	1.454E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.291E-09
U-238	9.890E-08	0.0049	1.374E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.065E-09
Total	2.006E-05	0.9860	4.011E-08	0.0020	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.446E-07

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.318E-06	0.0648
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.335E-07	0.0066
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.215E-07	0.0060
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.395E-06	0.3634
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.992E-06	0.1962
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.784E-06	0.3334
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.716E-09	0.0003
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.309E-09	0.0004
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.060E-09	0.0002
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.818E-07	0.0237
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.043E-07	0.0051
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Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.035E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+01 years

0

Radon Pathway	Radionuclides ÄÄÄ							
	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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 Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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 Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

 Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  7.759E-07 0.0381  7.485E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.331E-08 0.0007
 Pa-231  6.288E-07 0.0309  9.327E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.632E-08 0.0008
 Pb-210  2.273E-09 0.0001  1.093E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.090E-08 0.0035
 Ra-226  7.327E-06 0.3600  2.325E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.211E-08 0.0031
 Ra-228  2.167E-06 0.1065  2.315E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.090E-08 0.0005
 Th-228  4.100E-08 0.0020  5.082E-11 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.637E-11 0.0000
 Th-230  5.167E-08 0.0025  1.992E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.308E-09 0.0002
 Th-232  8.495E-06 0.4174  1.108E-08 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.606E-08 0.0028
 U-234   2.283E-10 0.0000  1.617E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.219E-09 0.0002
 U-235   4.772E-07 0.0235  1.456E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.295E-09 0.0002
 U-238   9.890E-08 0.0049  1.374E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.065E-09 0.0002
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 Total   2.006E-05 0.9860  4.011E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.446E-07 0.0120
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+01 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.967E-07 0.0392
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.545E-07 0.0322
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.426E-08 0.0036
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.391E-06 0.3632
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.180E-06 0.1071
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.114E-08 0.0020
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.797E-08 0.0028
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.562E-06 0.4207
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.064E-09 0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.820E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.043E-07 0.0051
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Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 2.035E-05 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+01 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	4.846E-03	0.000E+00	0.000E+00	0.000E+00	2.808E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.808E+00
Pa-231	4.846E-03	0.000E+00	0.000E+00	0.000E+00	2.808E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.808E+00
Pb-210	4.838E-03	0.000E+00	0.000E+00	0.000E+00	2.804E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.804E+00
Ra-226	4.848E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Ra-228	4.848E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-228	4.848E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-230	4.848E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
Th-232	4.848E-03	0.000E+00	0.000E+00	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.810E+00
U-234	4.844E-03	0.000E+00	0.000E+00	0.000E+00	2.807E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.807E+00
U-235	4.844E-03	0.000E+00	0.000E+00	0.000E+00	2.807E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.807E+00
U-238	4.844E-03	0.000E+00	0.000E+00	0.000E+00	2.807E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.807E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+01 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	1.283E-06	0.0631	1.238E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.200E-08	0.0011
Pa-231	1.213E-07	0.0060	4.431E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.616E-09	0.0004
Pb-210	3.713E-09	0.0002	1.785E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.158E-07	0.0057
Ra-226	7.375E-06	0.3625	1.645E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.736E-08	0.0009
Ra-228	3.940E-06	0.1937	2.545E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.831E-08	0.0024
Th-228	6.760E-06	0.3323	8.378E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.424E-08	0.0007
Th-230	7.253E-10	0.0000	1.978E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.012E-09	0.0002

```
 Th-232  3.044E-10 0.0000  2.519E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.484E-09
0.0002
 U-234   2.242E-10 0.0000  1.615E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.216E-09
0.0002
 U-235   4.767E-07 0.0234  1.453E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.288E-09
0.0002
 U-238   9.882E-08 0.0049  1.373E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.062E-09
0.0002
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ÍÍÍÍÍÍ
 Total   2.006E-05 0.9860  4.010E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.444E-07
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.317E-06
0.0647
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.334E-07
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.213E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.394E-06
0.3634
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.991E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.783E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.715E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.307E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.056E-09
```

```
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.814E-07
0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.043E-07
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.034E-05
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
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               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+01 years
0                                                         Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                and Fraction of Total Risk at t= 3.000E+01 years
0                                             Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon             Plant               Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  4.103E-07 0.0202  3.958E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.036E-09 0.0003
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 Pa-231  9.934E-07 0.0488  1.284E-08 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.257E-08 0.0011
 Pb-210  1.218E-09 0.0001  5.855E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.799E-08 0.0019
 Ra-226  7.264E-06 0.3570  2.808E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.420E-08 0.0046
 Ra-228  1.999E-07 0.0098  2.145E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.896E-10 0.0000
 Th-228  2.922E-11 0.0000  3.621E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.155E-14 0.0000
 Th-230  1.148E-07 0.0056  2.014E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.998E-09 0.0002
 Th-232  1.050E-05 0.5161  1.323E-08 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.604E-08 0.0032
 U-234   2.431E-10 0.0000  1.616E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.217E-09 0.0002
 U-235   4.772E-07 0.0235  1.460E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.301E-09 0.0002
 U-238   9.882E-08 0.0049  1.373E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.062E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.006E-05 0.9860  4.010E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.444E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  24
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                and Fraction of Total Risk at t= 3.000E+01 years

                                                        Water Dependent Pathways

              Water               Fish               Radon             Plant               Meat               Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.213E-07 0.0207
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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.029E-06 0.0506
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.979E-08 0.0020
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.361E-06 0.3618
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.011E-07 0.0099
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.932E-11 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.219E-07 0.0060
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.058E-05 0.5200
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.076E-09 0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.819E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.043E-07 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.034E-05 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                        Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                      As pCi/yr at t= 1.000E+02 years

           Water Independent Pathways (Inhalation w/o radon)                     Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat        Milk        Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    4.837E-03  0.000E+00  0.000E+00  0.000E+00  2.804E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.804E+00
 Pa-231    4.838E-03  0.000E+00  0.000E+00  0.000E+00  2.804E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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										0.000E+00	2.804E+00
Pb-210	4.830E-03	0.000E+00	0.000E+00	0.000E+00	2.799E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.799E+00
Ra-226	4.846E-03	0.000E+00	0.000E+00	0.000E+00	2.808E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.808E+00
Ra-228	4.844E-03	0.000E+00	0.000E+00	0.000E+00	2.807E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.807E+00
Th-228	4.844E-03	0.000E+00	0.000E+00	0.000E+00	2.807E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.807E+00
Th-230	4.844E-03	0.000E+00	0.000E+00	0.000E+00	2.807E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.807E+00
Th-232	4.844E-03	0.000E+00	0.000E+00	0.000E+00	2.807E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.807E+00
U-234	4.830E-03	0.000E+00	0.000E+00	0.000E+00	2.799E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.799E+00
U-235	4.830E-03	0.000E+00	0.000E+00	0.000E+00	2.799E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.799E+00
U-238	4.830E-03	0.000E+00	0.000E+00	0.000E+00	2.799E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.799E+00

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* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+02 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Youth - Re-baseline March 2010
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.281E-06	0.0630	1.235E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.196E-08	0.0011
Pa-231	1.211E-07	0.0060	4.423E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.603E-09	0.0004
Pb-210	3.707E-09	0.0002	1.782E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.156E-07	0.0057
Ra-226	7.372E-06	0.3626	1.644E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.735E-08	0.0009
Ra-228	3.937E-06	0.1937	2.543E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.827E-08	0.0024
Th-228	6.755E-06	0.3323	8.372E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.423E-08	0.0007
Th-230	7.247E-10	0.0000	1.976E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.009E-09	0.0002
Th-232	3.042E-10	0.0000	2.517E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.480E-09	0.0002
U-234	2.236E-10	0.0000	1.611E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.207E-09	0.0002
U-235	4.754E-07	0.0234	1.449E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.279E-09	0.0002
U-238	9.855E-08	0.0048	1.369E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.050E-09	0.0002
Total	2.004E-05	0.9860	4.004E-08	0.0020	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.441E-07	0.0120

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+02 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.315E-06
0.0647
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.332E-07
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.211E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.391E-06
0.3636
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.988E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.778E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.710E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.301E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.042E-09
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.801E-07
0.0236
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.040E-07
0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.033E-05
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

              Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                          Radon and its Decay Products at t= 1.000E+02 years
0                                                 Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  4.410E-08 0.0022  4.254E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.564E-10 0.0000
 Pa-231  1.355E-06 0.0667  1.632E-08 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.876E-08 0.0014
 Pb-210  1.371E-10 0.0000  6.593E-11 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.277E-09 0.0002
 Ra-226  7.044E-06 0.3465  3.230E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.242E-07 0.0061
 Ra-228  4.325E-11 0.0000  4.641E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.141E-13 0.0000
 Th-228  2.823E-22 0.0000  3.499E-25 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.947E-25 0.0000
 Th-230  3.315E-07 0.0163  2.105E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.475E-09 0.0004
 Th-232  1.069E-05 0.5260  1.343E-08 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.698E-08 0.0033
 U-234   3.832E-10 0.0000  1.612E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.212E-09 0.0002
 U-235   4.777E-07 0.0235  1.478E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.331E-09 0.0002
 U-238   9.855E-08 0.0048  1.370E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.051E-09 0.0002
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 Total   2.004E-05 0.9860  4.004E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.441E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  28
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+02 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.528E-08 0.0022
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.400E-06 0.0689
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.480E-09 0.0002
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.172E-06 0.3528
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.351E-11 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.832E-22 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.420E-07 0.0168
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.077E-05 0.5299
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.207E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.825E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.040E-07 0.0051
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Total   0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 2.033E-05 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Youth - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	4.815E-03	0.000E+00	0.000E+00	0.000E+00	2.790E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.790E+00
Pa-231	4.815E-03	0.000E+00	0.000E+00	0.000E+00	2.791E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.791E+00
Pb-210	4.822E-03	0.000E+00	0.000E+00	0.000E+00	2.795E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.795E+00
Ra-226	4.839E-03	0.000E+00	0.000E+00	0.000E+00	2.804E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.804E+00
Ra-228	4.834E-03	0.000E+00	0.000E+00	0.000E+00	2.801E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.801E+00
Th-228	4.834E-03	0.000E+00	0.000E+00	0.000E+00	2.801E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.801E+00
Th-230	4.833E-03	0.000E+00	0.000E+00	0.000E+00	2.801E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.801E+00
Th-232	4.833E-03	0.000E+00	0.000E+00	0.000E+00	2.801E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.801E+00
U-234	4.792E-03	0.000E+00	0.000E+00	0.000E+00	2.777E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E+00
U-235	4.792E-03	0.000E+00	0.000E+00	0.000E+00	2.777E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E+00
U-238	4.792E-03	0.000E+00	0.000E+00	0.000E+00	2.777E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.777E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Youth - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.275E-06	0.0628	1.230E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.186E-08	0.0011
Pa-231	1.206E-07	0.0059	4.402E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.567E-09	0.0004
Pb-210	3.701E-09	0.0002	1.779E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.155E-07	0.0057
Ra-226	7.361E-06	0.3629	1.642E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.732E-08	0.0009
Ra-228	3.928E-06	0.1937	2.537E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.816E-08	0.0024
Th-228	6.740E-06	0.3323	8.353E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.420E-08	0.0007
Th-230	7.231E-10	0.0000	1.972E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.000E-09	0.0002

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 Th-232  3.035E-10 0.0000  2.511E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.470E-09
0.0002
 U-234   2.218E-10 0.0000  1.598E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.182E-09
0.0002
 U-235   4.716E-07 0.0233  1.437E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.253E-09
0.0002
 U-238   9.776E-08 0.0048  1.358E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.018E-09
0.0002
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 Total   2.000E-05 0.9860  3.989E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.435E-07
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.309E-06
0.0645
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.325E-07
0.0065
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.209E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.380E-06
0.3639
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.979E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.763E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.695E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.285E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.001E-09
```

```
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.763E-07
0.0235
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.031E-07
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.028E-05
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+02 years
0                                                    Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                and Fraction of Total Risk at t= 3.000E+02 years
0                                             Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  7.533E-11 0.0000  7.267E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.292E-12 0.0000
```

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 Pa-231  1.387E-06 0.0684  1.660E-08 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.925E-08 0.0014
 Pb-210  2.674E-13 0.0000  1.286E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.341E-12 0.0000
 Ra-226  6.451E-06 0.3180  3.018E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.177E-07 0.0058
 Ra-228  1.461E-21 0.0000  1.568E-24 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.234E-24 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  9.132E-07 0.0450  2.368E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.902E-08 0.0009
 Th-232  1.067E-05 0.5260  1.340E-08 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.683E-08 0.0033
 U-234   1.504E-09 0.0001  1.603E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.209E-09 0.0002
 U-235   4.797E-07 0.0237  1.537E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.428E-09 0.0002
 U-238   9.776E-08 0.0048  1.360E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.021E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.000E-05 0.9860  3.989E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.435E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  32
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 3.000E+02 years

                                                   Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.735E-11 0.0000
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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.433E-06 0.0706
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.737E-12 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.571E-06 0.3240
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.470E-21 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.346E-07 0.0461
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.075E-05 0.5300
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.316E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.847E-07 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.031E-07 0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.028E-05 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  33
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                        Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                           As pCi/yr at t= 1.000E+03 years

           Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    4.735E-03  0.000E+00  0.000E+00  0.000E+00  2.744E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.744E+00
 Pa-231    4.735E-03  0.000E+00  0.000E+00  0.000E+00  2.744E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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0.000E+00  2.744E+00
 Pb-210    4.795E-03  0.000E+00  0.000E+00  0.000E+00  2.779E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.779E+00
 Ra-226    4.812E-03  0.000E+00  0.000E+00  0.000E+00  2.789E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.789E+00
 Ra-228    4.796E-03  0.000E+00  0.000E+00  0.000E+00  2.780E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.780E+00
 Th-228    4.796E-03  0.000E+00  0.000E+00  0.000E+00  2.780E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.780E+00
 Th-230    4.796E-03  0.000E+00  0.000E+00  0.000E+00  2.779E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.779E+00
 Th-232    4.796E-03  0.000E+00  0.000E+00  0.000E+00  2.780E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.780E+00
 U-234     4.659E-03  0.000E+00  0.000E+00  0.000E+00  2.700E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.700E+00
 U-235     4.659E-03  0.000E+00  0.000E+00  0.000E+00  2.700E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.700E+00
 U-238     4.659E-03  0.000E+00  0.000E+00  0.000E+00  2.700E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  2.700E+00
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 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
          Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                     Radon and its Decay Products as pCi/yr at t= 1.000E+03 years
0                                                      Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
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 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                 Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  and Fraction of Total Risk at t= 1.000E+03 years
```

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	1.253E-06	0.0623	1.209E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.150E-08
Pa-231	1.186E-07	0.0059	4.329E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.441E-09
Pb-210	3.681E-09	0.0002	1.770E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.148E-07
Ra-226	7.319E-06	0.3638	1.632E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.722E-08
Ra-228	3.898E-06	0.1938	2.518E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.779E-08
Th-228	6.688E-06	0.3325	8.289E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.409E-08
Th-230	7.174E-10	0.0000	1.956E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.969E-09
Th-232	3.012E-10	0.0000	2.492E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.436E-09
U-234	2.157E-10	0.0000	1.554E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.094E-09
U-235	4.585E-07	0.0228	1.397E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.163E-09
U-238	9.506E-08	0.0047	1.321E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.907E-09
Total	1.984E-05	0.9860	3.935E-08	0.0020	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.414E-07

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.287E-06	0.0640
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.303E-07	0.0065
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.203E-07	0.0060
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.338E-06	0.3648
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.948E-06	0.1963
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.710E-06	0.3336
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.642E-09	0.0003
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.229E-09	0.0004
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.863E-09	0.0002
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.631E-07	0.0230
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.003E-07	0.0050
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.012E-05	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+03 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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 Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.552E-20 0.0000  1.497E-22 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.661E-22 0.0000
 Pa-231  1.344E-06 0.0668  1.609E-08 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.835E-08 0.0014
 Pb-210  8.759E-23 0.0000  4.211E-23 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.732E-21 0.0000
 Ra-226  4.740E-06 0.2356  2.218E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.650E-08 0.0043
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.572E-06 0.1278  3.117E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.925E-08 0.0024
 Th-232  1.059E-05 0.5262  1.330E-08 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.632E-08 0.0033
 U-234   1.258E-08 0.0006  1.572E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.332E-09 0.0002
 U-235   4.864E-07 0.0242  1.733E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.754E-09 0.0002
 U-238   9.507E-08 0.0047  1.325E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.916E-09 0.0002
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 Total   1.984E-05 0.9860  3.935E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.414E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:17  Page  36
 Intrisk : TTLF Recreational Youth - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECYOUTH.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+03 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.593E-20 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.389E-06 0.0690
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.862E-21 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.828E-06 0.2400
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.624E-06 0.1304
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.067E-05 0.5302
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.749E-08 0.0009
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.919E-07 0.0245
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.003E-07 0.0050
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.012E-05 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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Appendix G-3
RESRAD Dose Output for Trespasser Adult

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1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:22 Page 1
Summary : TTLF Recreational Adult - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

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Time = 0.000E+00 13
Time = 1.000E+00 14
Time = 3.000E+00 15
Time = 1.000E+01 16
Time = 3.000E+01 17
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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(2)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(3)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(4)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(5)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(6)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(7)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(8)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(9)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1(10)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1(11)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(12)

A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(13)
A-1	Pb-212 (Source: FGR 12)	7.043E-01	7.043E-01	DCF1(14)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(15)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(16)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(17)
A-1	Po-212 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(18)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(19)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(20)
A-1	Po-216 (Source: FGR 12)	1.042E-04	1.042E-04	DCF1(21)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(22)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(23)
A-1	Ra-224 (Source: FGR 12)	5.119E-02	5.119E-02	DCF1(24)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(25)
A-1	Ra-228 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(26)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(27)
A-1	Rn-220 (Source: FGR 12)	2.298E-03	2.298E-03	DCF1(28)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(29)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(30)
A-1	Th-228 (Source: FGR 12)	7.940E-03	7.940E-03	DCF1(31)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(32)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(33)
A-1	Th-232 (Source: FGR 12)	5.212E-04	5.212E-04	DCF1(34)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1(35)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(36)
A-1	Tl-208 (Source: FGR 12)	2.298E+01	2.298E+01	DCF1(37)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(38)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(39)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(40)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1(41)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	2.320E-02	1.360E-02	DCF2(3)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(4)
B-1	Ra-228+D	5.078E-03	4.770E-03	DCF2(5)
B-1	Th-228+D	3.454E-01	3.420E-01	DCF2(6)

1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:22 Page 3
Summary : TTLF Recreational Adult - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-230	3.260E-01	3.260E-01	DCF2(7)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(8)

```
B-1  ³ U-234                                                    ³ 1.320E-01 ³ 1.320E-01 ³ DCF2(  9)
B-1  ³ U-235+D                                                  ³ 1.230E-01 ³ 1.230E-01 ³ DCF2( 10)
B-1  ³ U-238                                                    ³ 1.180E-01 ³ 1.180E-01 ³ DCF2( 11)
B-1  ³ U-238+D                                                  ³ 1.180E-01 ³ 1.180E-01 ³ DCF2( 12)
     ³                                                          ³           ³           ³
D-1  ³ Dose conversion factors for ingestion, mrem/pCi:         ³           ³           ³
D-1  ³ Ac-227+D                                                 ³ 1.480E-02 ³ 1.410E-02 ³ DCF3(  1)
D-1  ³ Pa-231                                                   ³ 1.060E-02 ³ 1.060E-02 ³ DCF3(  2)
D-1  ³ Pb-210+D                                                 ³ 7.276E-03 ³ 5.370E-03 ³ DCF3(  3)
D-1  ³ Ra-226+D                                                 ³ 1.321E-03 ³ 1.320E-03 ³ DCF3(  4)
D-1  ³ Ra-228+D                                                 ³ 1.442E-03 ³ 1.440E-03 ³ DCF3(  5)
D-1  ³ Th-228+D                                                 ³ 8.086E-04 ³ 3.960E-04 ³ DCF3(  6)
D-1  ³ Th-230                                                   ³ 5.480E-04 ³ 5.480E-04 ³ DCF3(  7)
D-1  ³ Th-232                                                   ³ 2.730E-03 ³ 2.730E-03 ³ DCF3(  8)
D-1  ³ U-234                                                    ³ 2.830E-04 ³ 2.830E-04 ³ DCF3(  9)
D-1  ³ U-235+D                                                  ³ 2.673E-04 ³ 2.660E-04 ³ DCF3( 10)
D-1  ³ U-238                                                    ³ 2.550E-04 ³ 2.550E-04 ³ DCF3( 11)
D-1  ³ U-238+D                                                  ³ 2.687E-04 ³ 2.550E-04 ³ DCF3( 12)
     ³                                                          ³           ³           ³
D-34 ³ Food transfer factors:                                   ³           ³           ³
D-34 ³ Ac-227+D  , plant/soil concentration ratio, dimensionless ³ 2.500E-03 ³ 2.500E-03 ³ RTF(  1,1)
D-34 ³ Ac-227+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 2.000E-05 ³ 2.000E-05 ³ RTF(  1,2)
D-34 ³ Ac-227+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 2.000E-05 ³ 2.000E-05 ³ RTF(  1,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Pa-231    , plant/soil concentration ratio, dimensionless ³ 1.000E-02 ³ 1.000E-02 ³ RTF(  2,1)
D-34 ³ Pa-231    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 5.000E-03 ³ 5.000E-03 ³ RTF(  2,2)
D-34 ³ Pa-231    , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  2,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Pb-210+D  , plant/soil concentration ratio, dimensionless ³ 1.000E-02 ³ 1.000E-02 ³ RTF(  3,1)
D-34 ³ Pb-210+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 8.000E-04 ³ 8.000E-04 ³ RTF(  3,2)
D-34 ³ Pb-210+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 3.000E-04 ³ 3.000E-04 ³ RTF(  3,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Ra-226+D  , plant/soil concentration ratio, dimensionless ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  4,1)
D-34 ³ Ra-226+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,2)
D-34 ³ Ra-226+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Ra-228+D  , plant/soil concentration ratio, dimensionless ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  5,1)
D-34 ³ Ra-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,2)
D-34 ³ Ra-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Th-228+D  , plant/soil concentration ratio, dimensionless ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  6,1)
D-34 ³ Th-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  6,2)
D-34 ³ Th-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  6,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Th-230    , plant/soil concentration ratio, dimensionless ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  7,1)
D-34 ³ Th-230    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  7,2)
D-34 ³ Th-230    , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  7,3)
D-34 ³                                                          ³           ³           ³
```

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(8,1)
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(8,2)
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(8,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(9,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(9,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(9,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(10,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(10,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(10,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(11,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(11,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(11,3)
D-34				
D-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(12,1)
D-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(12,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(12,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
D-5				
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)
D-5				
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(4,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(4,2)
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIOFAC(5,1)
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(5,2)
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIOFAC(6,1)
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(6,2)
D-5				

```
 D-5  ³ Th-230    , fish                                            ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  7,1)
 D-5  ³ Th-230    , crustacea and mollusks                          ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  7,2)
 D-5  ³                                                             ³           ³           ³
 D-5  ³ Th-232    , fish                                            ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  8,1)
 D-5  ³ Th-232    , crustacea and mollusks                          ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  8,2)
 D-5  ³                                                             ³           ³           ³
 D-5  ³ U-234     , fish                                            ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC(  9,1)
 D-5  ³ U-234     , crustacea and mollusks                          ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC(  9,2)
 D-5  ³                                                             ³           ³           ³
 D-5  ³ U-235+D   , fish                                            ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 10,1)
 D-5  ³ U-235+D   , crustacea and mollusks                          ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 10,2)
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 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                    Dose Conversion Factor (and Related) Parameter Summary (continued)
                                      Dose Library: FGR 12 & FGR 11
0     ³                                                             ³  Current  ³   Base    ³  Parameter
 Menu ³                         Parameter                           ³   Value#  ³   Case*   ³    Name
 ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 D-5  ³ U-238     , fish                                            ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 11,1)
 D-5  ³ U-238     , crustacea and mollusks                          ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 11,2)
 D-5  ³                                                             ³           ³           ³
 D-5  ³ U-238+D   , fish                                            ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 12,1)
 D-5  ³ U-238+D   , crustacea and mollusks                          ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 12,2)
 ÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
 #For DCF1(xxx) only, factors are for infinite depth & area.  See ETFG table in Ground Pathway of Detailed
Report.
 *Base Case means Default.Lib w/o Associate Nuclide contributions.
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                                                            Site-Specific Parameter Summary
0     ³                                                  ³   User    ³           ³          Used by RESRAD
    ³  Parameter
 Menu ³                  Parameter                       ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R011 ³ Area of contaminated zone (m**2)                 ³ 1.000E+04 ³ 1.000E+04 ³             ---
    ³ AREA
 R011 ³ Thickness of contaminated zone (m)               ³ 2.000E+00 ³ 2.000E+00 ³             ---
    ³ THICK0
 R011 ³ Fraction of contamination that is submerged      ³ 8.500E-01 ³ 0.000E+00 ³             ---
    ³ SUBMFRACT
 R011 ³ Length parallel to aquifer flow (m)              ³ not used  ³ 1.000E+02 ³             ---
```

```
    ³ LCZPAQ
R011 ³ Basic radiation dose limit (mrem/yr)             ³ 2.500E+01 ³ 3.000E+01 ³              ---
    ³ BRDL
R011 ³ Time since placement of material (yr)            ³ 0.000E+00 ³ 0.000E+00 ³              ---
    ³ TI
R011 ³ Times for calculations (yr)                      ³ 1.000E+00 ³ 1.000E+00 ³              ---
    ³ T( 2)
R011 ³ Times for calculations (yr)                      ³ 3.000E+00 ³ 3.000E+00 ³              ---
    ³ T( 3)
R011 ³ Times for calculations (yr)                      ³ 1.000E+01 ³ 1.000E+01 ³              ---
    ³ T( 4)
R011 ³ Times for calculations (yr)                      ³ 3.000E+01 ³ 3.000E+01 ³              ---
    ³ T( 5)
R011 ³ Times for calculations (yr)                      ³ 1.000E+02 ³ 1.000E+02 ³              ---
    ³ T( 6)
R011 ³ Times for calculations (yr)                      ³ 3.000E+02 ³ 3.000E+02 ³              ---
    ³ T( 7)
R011 ³ Times for calculations (yr)                      ³ 1.000E+03 ³ 1.000E+03 ³              ---
    ³ T( 8)
R011 ³ Times for calculations (yr)                      ³ not used  ³ 0.000E+00 ³              ---
    ³ T( 9)
R011 ³ Times for calculations (yr)                      ³ not used  ³ 0.000E+00 ³              ---
    ³ T(10)
     ³                                                  ³           ³           ³
    ³
R012 ³ Initial principal radionuclide (pCi/g):  Ac-227  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(1)
R012 ³ Initial principal radionuclide (pCi/g):  Pa-231  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(2)
R012 ³ Initial principal radionuclide (pCi/g):  Pb-210  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(3)
R012 ³ Initial principal radionuclide (pCi/g):  Ra-226  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(4)
R012 ³ Initial principal radionuclide (pCi/g):  Ra-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(5)
R012 ³ Initial principal radionuclide (pCi/g):  Th-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(6)
R012 ³ Initial principal radionuclide (pCi/g):  Th-230  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(7)
R012 ³ Initial principal radionuclide (pCi/g):  Th-232  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(8)
R012 ³ Initial principal radionuclide (pCi/g):  U-234   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(9)
R012 ³ Initial principal radionuclide (pCi/g):  U-235   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(10)
R012 ³ Initial principal radionuclide (pCi/g):  U-238   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(11)
R012 ³ Concentration in groundwater   (pCi/L):  Ac-227  ³ 5.350E+00 ³ 0.000E+00 ³          0.000E+00
```

```
     ³ W1( 1)
R012 ³ Concentration in groundwater   (pCi/L):  Pa-231  ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 2)
R012 ³ Concentration in groundwater   (pCi/L):  Pb-210  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 3)
R012 ³ Concentration in groundwater   (pCi/L):  Ra-226  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 4)
R012 ³ Concentration in groundwater   (pCi/L):  Ra-228  ³ 5.460E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 5)
R012 ³ Concentration in groundwater   (pCi/L):  Th-228  ³ 2.330E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 6)
R012 ³ Concentration in groundwater   (pCi/L):  Th-230  ³ 5.580E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 7)
R012 ³ Concentration in groundwater   (pCi/L):  Th-232  ³ 1.730E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 8)
R012 ³ Concentration in groundwater   (pCi/L):  U-234   ³ 7.360E+01 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 9)
R012 ³ Concentration in groundwater   (pCi/L):  U-235   ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1(10)
R012 ³ Concentration in groundwater   (pCi/L):  U-238   ³ 7.280E+01 ³ 0.000E+00 ³           0.000E+00
     ³ W1(11)
      ³                                                ³           ³           ³
     ³
R013 ³ Cover depth (m)                                 ³ 0.000E+00 ³ 0.000E+00 ³              ---
     ³ COVER0
R013 ³ Density of cover material (g/cm**3)             ³ not used  ³ 1.500E+00 ³              ---
     ³ DENSCV
R013 ³ Cover depth erosion rate (m/yr)                 ³ not used  ³ 1.000E-03 ³              ---
     ³ VCV
R013 ³ Density of contaminated zone (g/cm**3)          ³ 1.450E+00 ³ 1.500E+00 ³              ---
     ³ DENSCZ
R013 ³ Contaminated zone erosion rate (m/yr)           ³ 1.000E-03 ³ 1.000E-03 ³              ---
     ³ VCZ
R013 ³ Contaminated zone total porosity                ³ 4.500E-01 ³ 4.000E-01 ³              ---
     ³ TPCZ
R013 ³ Contaminated zone field capacity                ³ 2.000E-01 ³ 2.000E-01 ³              ---
     ³ FCCZ
R013 ³ Contaminated zone hydraulic conductivity (m/yr) ³ 2.270E+03 ³ 1.000E+01 ³              ---
     ³ HCCZ
R013 ³ Contaminated zone b parameter                   ³ 4.000E+00 ³ 5.300E+00 ³              ---
     ³ BCZ
R013 ³ Average annual wind speed (m/sec)               ³ 2.000E+00 ³ 2.000E+00 ³              ---
     ³ WIND
R013 ³ Humidity in air (g/m**3)                        ³ not used  ³ 8.000E+00 ³              ---
     ³ HUMID
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```

Site-Specific Parameter Summary (continued)

Menu	Parameter Name	Parameter	User Input	Default	Used by RESRAD (If different from user input)
R013	EVAPTR	Evapotranspiration coefficient	7.800E-01	5.000E-01	---
R013	PRECIP	Precipitation (m/yr)	9.800E-01	1.000E+00	---
R013	RI	Irrigation (m/yr)	2.000E-01	2.000E-01	---
R013	IDITCH	Irrigation mode	overhead	overhead	---
R013	RUNOFF	Runoff coefficient	5.000E-01	2.000E-01	---
R013	WAREA	Watershed area for nearby stream or pond (m**2)	not used	1.000E+06	---
R013	EPS	Accuracy for water/soil computations	not used	1.000E-03	---
R014	DENSAQ	Density of saturated zone (g/cm**3)	not used	1.500E+00	---
R014	TPSZ	Saturated zone total porosity	not used	4.000E-01	---
R014	EPSZ	Saturated zone effective porosity	not used	2.000E-01	---
R014	FCSZ	Saturated zone field capacity	not used	2.000E-01	---
R014	HCSZ	Saturated zone hydraulic conductivity (m/yr)	not used	1.000E+02	---
R014	HGWT	Saturated zone hydraulic gradient	not used	2.000E-02	---
R014	BSZ	Saturated zone b parameter	not used	5.300E+00	---
R014	VWT	Water table drop rate (m/yr)	not used	1.000E-03	---
R014	DWIBWT	Well pump intake depth (m below water table)	not used	1.000E+01	---
R014	MODEL	Model: Nondispersion (ND) or Mass-Balance (MB)	not used	ND	---
R014	UW	Well pumping rate (m**3/yr)	not used	2.500E+02	---

```
     ³
R015 ³ Number of unsaturated zone strata                ³ not used  ³ 1         ³              ---
     ³ NS
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Ac-227             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 2.400E+03 ³ 2.000E+01 ³              ---
     ³ DCNUCC( 1)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 2.000E+01 ³              ---
     ³ DCNUCS( 1)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           2.669E-05
     ³ ALEACH( 1)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 1)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Pa-231             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 2.700E+03 ³ 5.000E+01 ³              ---
     ³ DCNUCC( 2)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
     ³ DCNUCS( 2)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           2.373E-05
     ³ ALEACH( 2)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 2)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Pb-210             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 5.500E+02 ³ 1.000E+02 ³              ---
     ³ DCNUCC( 3)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 1.000E+02 ³              ---
     ³ DCNUCS( 3)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           1.164E-04
     ³ ALEACH( 3)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 3)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Ra-226             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 9.100E+03 ³ 7.000E+01 ³              ---
     ³ DCNUCC( 4)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 7.000E+01 ³              ---
     ³ DCNUCS( 4)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           7.040E-06
```

```
     ³ ALEACH( 4)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³            not used
     ³ SOLUBK( 4)
      ³                                                 ³           ³           ³
     ³
 R016 ³ Distribution coefficients for Ra-228            ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                   ³ 9.100E+03 ³ 7.000E+01 ³              ---
     ³ DCNUCC( 5)
 R016 ³   Saturated zone (cm**3/g)                      ³ not used  ³ 7.000E+01 ³              ---
     ³ DCNUCS( 5)
 R016 ³   Leach rate (/yr)                              ³ 0.000E+00 ³ 0.000E+00 ³            7.040E-06
     ³ ALEACH( 5)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³            not used
     ³ SOLUBK( 5)
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                                                Site-Specific Parameter Summary (continued)
0     ³                                                 ³   User    ³           ³         Used by RESRAD
     ³  Parameter
 Menu ³                   Parameter                     ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R016 ³ Distribution coefficients for Th-228            ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                   ³ 5.800E+03 ³ 6.000E+04 ³              ---
     ³ DCNUCC( 6)
 R016 ³   Saturated zone (cm**3/g)                      ³ not used  ³ 6.000E+04 ³              ---
     ³ DCNUCS( 6)
 R016 ³   Leach rate (/yr)                              ³ 0.000E+00 ³ 0.000E+00 ³            1.105E-05
     ³ ALEACH( 6)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³            not used
     ³ SOLUBK( 6)
      ³                                                 ³           ³           ³
     ³
 R016 ³ Distribution coefficients for Th-230            ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                   ³ 5.800E+03 ³ 6.000E+04 ³              ---
     ³ DCNUCC( 7)
 R016 ³   Saturated zone (cm**3/g)                      ³ not used  ³ 6.000E+04 ³              ---
     ³ DCNUCS( 7)
 R016 ³   Leach rate (/yr)                              ³ 0.000E+00 ³ 0.000E+00 ³            1.105E-05
     ³ ALEACH( 7)
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³            not used
```

```
    ³ SOLUBK( 7)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for Th-232             ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 5.800E+03 ³ 6.000E+04 ³              ---
    ³ DCNUCC( 8)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 6.000E+04 ³              ---
    ³ DCNUCS( 8)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
    ³ ALEACH( 8)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK( 8)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-234              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC( 9)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS( 9)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH( 9)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK( 9)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-235              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC(10)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS(10)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH(10)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK(10)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-238              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC(11)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS(11)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH(11)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
```

```
     ³ SOLUBK(11)
      ³                                                    ³            ³            ³
     ³
 R017 ³ Inhalation rate (m**3/yr)                          ³ 1.400E+04 ³ 8.400E+03 ³            ---
     ³ INHALR
 R017 ³ Mass loading for inhalation (g/m**3)               ³ 3.000E-05 ³ 1.000E-04 ³            ---
     ³ MLINH
 R017 ³ Exposure duration                                  ³ 3.000E+01 ³ 3.000E+01 ³            ---
     ³ ED
 R017 ³ Shielding factor, inhalation                       ³ 4.000E-01 ³ 4.000E-01 ³            ---
     ³ SHF3
 R017 ³ Shielding factor, external gamma                   ³ 4.000E-01 ³ 7.000E-01 ³            ---
     ³ SHF1
 R017 ³ Fraction of time spent indoors                     ³ 0.000E+00 ³ 5.000E-01 ³            ---
     ³ FIND
 R017 ³ Fraction of time spent outdoors (on site)          ³ 1.200E-02 ³ 2.500E-01 ³            ---
     ³ FOTD
 R017 ³ Shape factor flag, external gamma                  ³ 1.000E+00 ³ 1.000E+00 ³    >0 shows circular
AREA.     ³ FS
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                                      Site-Specific Parameter Summary (continued)
0     ³                                                    ³   User    ³           ³         Used by RESRAD
     ³  Parameter
 Menu ³                    Parameter                       ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R017 ³ Radii of shape factor array (used if FS = -1):    ³           ³           ³
     ³
 R017 ³   Outer annular radius (m), ring  1:              ³ not used  ³ 5.000E+01 ³            ---
     ³ RAD_SHAPE( 1)
 R017 ³   Outer annular radius (m), ring  2:              ³ not used  ³ 7.071E+01 ³            ---
     ³ RAD_SHAPE( 2)
 R017 ³   Outer annular radius (m), ring  3:              ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 3)
 R017 ³   Outer annular radius (m), ring  4:              ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 4)
 R017 ³   Outer annular radius (m), ring  5:              ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 5)
 R017 ³   Outer annular radius (m), ring  6:              ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 6)
 R017 ³   Outer annular radius (m), ring  7:              ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 7)
 R017 ³   Outer annular radius (m), ring  8:              ³ not used  ³ 0.000E+00 ³            ---
```

```
    ³ RAD_SHAPE( 8)
R017 ³   Outer annular radius (m), ring  9:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE( 9)
R017 ³   Outer annular radius (m), ring 10:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(10)
R017 ³   Outer annular radius (m), ring 11:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(11)
R017 ³   Outer annular radius (m), ring 12:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(12)
     ³                                                  ³           ³           ³
    ³
R017 ³ Fractions of annular areas within AREA:          ³           ³           ³
    ³
R017 ³   Ring  1                                        ³ not used  ³ 1.000E+00 ³              ---
    ³ FRACA( 1)
R017 ³   Ring  2                                        ³ not used  ³ 2.732E-01 ³              ---
    ³ FRACA( 2)
R017 ³   Ring  3                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 3)
R017 ³   Ring  4                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 4)
R017 ³   Ring  5                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 5)
R017 ³   Ring  6                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 6)
R017 ³   Ring  7                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 7)
R017 ³   Ring  8                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 8)
R017 ³   Ring  9                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 9)
R017 ³   Ring 10                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(10)
R017 ³   Ring 11                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(11)
R017 ³   Ring 12                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(12)
     ³                                                  ³           ³           ³
    ³
R018 ³ Fruits, vegetables and grain consumption (kg/yr) ³ not used  ³ 1.600E+02 ³              ---
    ³ DIET(1)
R018 ³ Leafy vegetable consumption (kg/yr)              ³ not used  ³ 1.400E+01 ³              ---
    ³ DIET(2)
R018 ³ Milk consumption (L/yr)                          ³ not used  ³ 9.200E+01 ³              ---
    ³ DIET(3)
R018 ³ Meat and poultry consumption (kg/yr)             ³ not used  ³ 6.300E+01 ³              ---
    ³ DIET(4)
R018 ³ Fish consumption (kg/yr)                         ³ not used  ³ 5.400E+00 ³              ---
```

```
     ³ DIET(5)
 R018 ³ Other seafood consumption (kg/yr)              ³ not used  ³ 9.000E-01 ³              ---
     ³ DIET(6)
 R018 ³ Soil ingestion rate (g/yr)                     ³ 3.650E+01 ³ 3.650E+01 ³              ---
     ³ SOIL
 R018 ³ Drinking water intake (L/yr)                   ³ not used  ³ 5.100E+02 ³              ---
     ³ DWI
 R018 ³ Contamination fraction of drinking water       ³ not used  ³ 1.000E+00 ³              ---
     ³ FDW
 R018 ³ Contamination fraction of household water      ³ not used  ³ 1.000E+00 ³              ---
     ³ FHHW
 R018 ³ Contamination fraction of livestock water      ³ not used  ³ 1.000E+00 ³              ---
     ³ FLW
 R018 ³ Contamination fraction of irrigation water     ³ not used  ³ 1.000E+00 ³              ---
     ³ FIRW
 R018 ³ Contamination fraction of aquatic food         ³ not used  ³ 5.000E-01 ³              ---
     ³ FR9
 R018 ³ Contamination fraction of plant food           ³ not used  ³-1         ³              ---
     ³ FPLANT
 R018 ³ Contamination fraction of meat                 ³ not used  ³-1         ³              ---
     ³ FMEAT
 R018 ³ Contamination fraction of milk                 ³ not used  ³-1         ³              ---
     ³ FMILK
      ³                                                ³           ³           ³
     ³
 R019 ³ Livestock fodder intake for meat (kg/day)      ³ not used  ³ 6.800E+01 ³              ---
     ³ LFI5
 R019 ³ Livestock fodder intake for milk (kg/day)      ³ not used  ³ 5.500E+01 ³              ---
     ³ LFI6
 R019 ³ Livestock water intake for meat (L/day)        ³ not used  ³ 5.000E+01 ³              ---
     ³ LWI5
 R019 ³ Livestock water intake for milk (L/day)        ³ not used  ³ 1.600E+02 ³              ---
     ³ LWI6
 R019 ³ Livestock soil intake (kg/day)                 ³ not used  ³ 5.000E-01 ³              ---
     ³ LSI
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  10
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                                           Site-Specific Parameter Summary (continued)
0     ³                                                ³   User    ³           ³         Used by RESRAD
     ³  Parameter
 Menu ³                    Parameter                   ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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 R019 ³ Mass loading for foliar deposition (g/m**3)    ³ not used  ³ 1.000E-04 ³              ---
```

```
    ³ MLFD
R019 ³ Depth of soil mixing layer (m)                    ³ 1.500E-01 ³ 1.500E-01 ³              ---
    ³ DM
R019 ³ Depth of roots (m)                                ³ not used  ³ 9.000E-01 ³              ---
    ³ DROOT
R019 ³ Drinking water fraction from ground water         ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWDW
R019 ³ Household water fraction from ground water        ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWHH
R019 ³ Livestock water fraction from ground water        ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWLW
R019 ³ Irrigation fraction from ground water             ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWIR
     ³                                                   ³           ³           ³
    ³
R19B ³ Wet weight crop yield for Non-Leafy (kg/m**2)     ³ not used  ³ 7.000E-01 ³              ---
    ³ YV(1)
R19B ³ Wet weight crop yield for Leafy     (kg/m**2)     ³ not used  ³ 1.500E+00 ³              ---
    ³ YV(2)
R19B ³ Wet weight crop yield for Fodder    (kg/m**2)     ³ not used  ³ 1.100E+00 ³              ---
    ³ YV(3)
R19B ³ Growing Season for  Non-Leafy (years)             ³ not used  ³ 1.700E-01 ³              ---
    ³ TE(1)
R19B ³ Growing Season for  Leafy     (years)             ³ not used  ³ 2.500E-01 ³              ---
    ³ TE(2)
R19B ³ Growing Season for  Fodder    (years)             ³ not used  ³ 8.000E-02 ³              ---
    ³ TE(3)
R19B ³ Translocation Factor for  Non-Leafy               ³ not used  ³ 1.000E-01 ³              ---
    ³ TIV(1)
R19B ³ Translocation Factor for  Leafy                   ³ not used  ³ 1.000E+00 ³              ---
    ³ TIV(2)
R19B ³ Translocation Factor for  Fodder                  ³ not used  ³ 1.000E+00 ³              ---
    ³ TIV(3)
R19B ³ Dry Foliar Interception Fraction for  Non-Leafy   ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(1)
R19B ³ Dry Foliar Interception Fraction for  Leafy       ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(2)
R19B ³ Dry Foliar Interception Fraction for  Fodder      ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(3)
R19B ³ Wet Foliar Interception Fraction for  Non-Leafy   ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(1)
R19B ³ Wet Foliar Interception Fraction for  Leafy       ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(2)
R19B ³ Wet Foliar Interception Fraction for  Fodder      ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(3)
R19B ³ Weathering Removal Constant for Vegetation        ³ not used  ³ 2.000E+01 ³              ---
    ³ WLAM
     ³                                                   ³           ³           ³
```

```
     ³
C14  ³ C-12 concentration in water (g/cm**3)            ³ not used  ³ 2.000E-05 ³               ---
     ³ C12WTR
C14  ³ C-12 concentration in contaminated soil (g/g)    ³ not used  ³ 3.000E-02 ³               ---
     ³ C12CZ
C14  ³ Fraction of vegetation carbon from soil          ³ not used  ³ 2.000E-02 ³               ---
     ³ CSOIL
C14  ³ Fraction of vegetation carbon from air           ³ not used  ³ 9.800E-01 ³               ---
     ³ CAIR
C14  ³ C-14 evasion layer thickness in soil (m)         ³ not used  ³ 3.000E-01 ³               ---
     ³ DMC
C14  ³ C-14 evasion flux rate from soil (1/sec)         ³ not used  ³ 7.000E-07 ³               ---
     ³ EVSN
C14  ³ C-12 evasion flux rate from soil (1/sec)         ³ not used  ³ 1.000E-10 ³               ---
     ³ REVSN
C14  ³ Fraction of grain in beef cattle feed            ³ not used  ³ 8.000E-01 ³               ---
     ³ AVFG4
C14  ³ Fraction of grain in milk cow feed               ³ not used  ³ 2.000E-01 ³               ---
     ³ AVFG5
      ³                                                 ³           ³           ³
     ³
STOR ³ Storage times of contaminated foodstuffs (days): ³           ³           ³
     ³
STOR ³   Fruits, non-leafy vegetables, and grain        ³ 1.400E+01 ³ 1.400E+01 ³               ---
     ³ STOR_T(1)
STOR ³   Leafy vegetables                               ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(2)
STOR ³   Milk                                           ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(3)
STOR ³   Meat and poultry                               ³ 2.000E+01 ³ 2.000E+01 ³               ---
     ³ STOR_T(4)
STOR ³   Fish                                           ³ 7.000E+00 ³ 7.000E+00 ³               ---
     ³ STOR_T(5)
STOR ³   Crustacea and mollusks                         ³ 7.000E+00 ³ 7.000E+00 ³               ---
     ³ STOR_T(6)
STOR ³   Well water                                     ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(7)
STOR ³   Surface water                                  ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(8)
STOR ³   Livestock fodder                               ³ 4.500E+01 ³ 4.500E+01 ³               ---
     ³ STOR_T(9)
      ³                                                 ³           ³           ³
     ³
R021 ³ Thickness of building foundation (m)             ³ not used  ³ 1.500E-01 ³               ---
     ³ FLOOR1
R021 ³ Bulk density of building foundation (g/cm**3)    ³ not used  ³ 2.400E+00 ³               ---
     ³ DENSFL
R021 ³ Total porosity of the cover material             ³ not used  ³ 4.000E-01 ³               ---
```

```
     ³ TPCV
 R021 ³ Total porosity of the building foundation       ³ not used  ³ 1.000E-01 ³              ---
     ³ TPFL
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 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                                                   Site-Specific Parameter Summary (continued)
0     ³                                            ³   User    ³           ³        Used by RESRAD
     ³  Parameter
 Menu ³                    Parameter               ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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 R021 ³ Volumetric water content of the cover material   ³ not used  ³ 5.000E-02 ³              ---
     ³ PH2OCV
 R021 ³ Volumetric water content of the foundation       ³ not used  ³ 3.000E-02 ³              ---
     ³ PH2OFL
 R021 ³ Diffusion coefficient for radon gas (m/sec):     ³           ³           ³
     ³
 R021 ³   in cover material                              ³ not used  ³ 2.000E-06 ³              ---
     ³ DIFCV
 R021 ³   in foundation material                         ³ not used  ³ 3.000E-07 ³              ---
     ³ DIFFL
 R021 ³   in contaminated zone soil                      ³ not used  ³ 2.000E-06 ³              ---
     ³ DIFCZ
 R021 ³ Radon vertical dimension of mixing (m)           ³ not used  ³ 2.000E+00 ³              ---
     ³ HMIX
 R021 ³ Average building air exchange rate (1/hr)        ³ not used  ³ 5.000E-01 ³              ---
     ³ REXG
 R021 ³ Height of the building (room) (m)                ³ not used  ³ 2.500E+00 ³              ---
     ³ HRM
 R021 ³ Building interior area factor                    ³ not used  ³ 0.000E+00 ³              ---
     ³ FAI
 R021 ³ Building depth below ground surface (m)          ³ not used  ³-1.000E+00 ³              ---
     ³ DMFL
 R021 ³ Emanating power of Rn-222 gas                    ³ not used  ³ 2.500E-01 ³              ---
     ³ EMANA(1)
 R021 ³ Emanating power of Rn-220 gas                    ³ not used  ³ 1.500E-01 ³              ---
     ³ EMANA(2)
      ³                                                  ³           ³           ³
     ³
 TITL ³ Number of graphical time points                  ³     32    ³    ---    ³              ---
     ³ NPTS
 TITL ³ Maximum number of integration points for dose    ³     17    ³    ---    ³              ---
     ³ LYMAX
 TITL ³ Maximum number of integration points for risk    ³    257    ³    ---    ³              ---
```

³ KYMAX

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Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Summary : TTLF Recreational Adult - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Contaminated Zone Dimensions

Area: 10000.00 square meters
Thickness: 2.00 meters

Cover Depth: 0.00 meters

Initial Soil Concentrations, pCi/g

Ac-227	1.000E+00
Pa-231	1.000E+00
Pb-210	1.000E+00
Ra-226	1.000E+00
Ra-228	1.000E+00
Th-228	1.000E+00
Th-230	1.000E+00
Th-232	1.000E+00
U-234	1.000E+00
U-235	1.000E+00
U-238	1.000E+00

0

Total Dose TDOSE(t), mrem/yr

Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

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t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	3.714E-01	3.714E-01	3.714E-01	3.714E-01	3.713E-01	3.710E-01	3.701E-01	3.669E-01
M(t):	1.486E-02	1.486E-02	1.486E-02	1.486E-02	1.485E-02	1.484E-02	1.480E-02	1.468E-02

0Maximum TDOSE(t): 3.714E-01 mrem/yr at t = 0.000E+00 years
1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:22 Page 13
Summary : TTLF Recreational Adult - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0
Water Independent Pathways (Inhalation excludes radon)
0

Radio- Nuclide	Ground mrem/yr	Ground fract.	Inhalation mrem/yr	Inhalation fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	Soil mrem/yr	Soil fract.
Ac-227	2.251E-02	0.0606	5.647E-03	0.0152	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.379E-03	0.0172
Pa-231	2.523E-03	0.0068	1.183E-03	0.0032	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.745E-03	0.0128
Pb-210	6.921E-05	0.0002	1.949E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.138E-03	0.0084
Ra-226	1.262E-01	0.3398	7.636E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.274E-04	0.0017
Ra-228	8.147E-02	0.2193	4.966E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.498E-04	0.0017
Th-228	9.673E-02	0.2604	2.472E-04	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.971E-04	0.0008
Th-230	4.125E-05	0.0001	2.782E-04	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.402E-04	0.0006
Th-232	4.664E-03	0.0126	1.402E-03	0.0038	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.235E-03	0.0033
U-234	4.648E-06	0.0000	1.126E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.240E-04	0.0003
U-235	8.657E-03	0.0233	1.050E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.171E-04	0.0003
U-238	1.717E-03	0.0046	1.007E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.177E-04	0.0003
Total	3.446E-01	0.9278	9.151E-03	0.0246	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.767E-02	0.0476

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

0 Water Dependent Pathways

0 Water Fish Radon Plant Meat Milk All Pathways*

Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0*Sum of all water independent and dependent pathways.

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Summary : TTLF Recreational Adult - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

```
0              Ground          Inhalation            Radon              Plant              Meat
Milk                Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  2.181E-02 0.0587  5.470E-03 0.0147  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.179E-03 0.0166
 Pa-231  3.228E-03 0.0087  1.359E-03 0.0037  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.944E-03 0.0133
 Pb-210  6.709E-05 0.0002  1.889E-05 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.041E-03 0.0082
 Ra-226  1.262E-01 0.3397  8.229E-06 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.232E-04 0.0019
 Ra-228  9.981E-02 0.2687  1.145E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.608E-04 0.0018
 Th-228  6.733E-02 0.1813  1.721E-04 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.068E-04 0.0006
 Th-230  9.592E-05 0.0003  2.782E-04 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.404E-04 0.0006
 Th-232  1.572E-02 0.0423  1.412E-03 0.0038  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.314E-03 0.0035
 U-234   4.649E-06 0.0000  1.126E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.239E-04 0.0003
 U-235   8.657E-03 0.0233  1.050E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.172E-04 0.0003
 U-238   1.717E-03 0.0046  1.007E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.177E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.446E-01 0.9278  9.151E-03 0.0246  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.767E-02 0.0476
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                  As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  3.345E-02 0.0901
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.532E-03 0.0257
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.127E-03 0.0084
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.269E-01 0.3417
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.006E-01 0.2708
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.771E-02 0.1823
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.145E-04 0.0017
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.845E-02 0.0497
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.412E-04 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.879E-03 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.936E-03 0.0052
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.714E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  15
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  2.046E-02 0.0551  5.132E-03 0.0138  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.798E-03 0.0156
 Pa-231  4.573E-03 0.0123  1.697E-03 0.0046  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.325E-03 0.0143
 Pb-210  6.303E-05 0.0002  1.775E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.857E-03 0.0077
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 Ra-226  1.261E-01 0.3394  9.360E-06 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.058E-04 0.0024
 Ra-228  1.088E-01 0.2930  1.677E-04 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.126E-04 0.0016
 Th-228  3.262E-02 0.0878  8.336E-05 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.002E-04 0.0003
 Th-230  2.052E-04 0.0006  2.782E-04 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.411E-04 0.0006
 Th-232  4.141E-02 0.1115  1.447E-03 0.0039  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.469E-03 0.0040
 U-234   4.651E-06 0.0000  1.126E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.239E-04 0.0003
 U-235   8.656E-03 0.0233  1.050E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.175E-04 0.0003
 U-238   1.717E-03 0.0046  1.007E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.177E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.446E-01 0.9278  9.151E-03 0.0246  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.767E-02 0.0476
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0                                                   Water Dependent Pathways
0              Water              Fish               Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.139E-02 0.0845
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.159E-02 0.0312
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.938E-03 0.0079
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.270E-01 0.3419
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.096E-01 0.2951
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.280E-02 0.0883
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.245E-04 0.0020
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  4.433E-02 0.1193
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.412E-04 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.879E-03 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.935E-03 0.0052
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.714E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  16
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk               Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.637E-02 0.0441  4.106E-03 0.0111  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.639E-03 0.0125
 Pa-231  8.658E-03 0.0233  2.721E-03 0.0073  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.481E-03 0.0175
 Pb-210  5.066E-05 0.0001  1.426E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.297E-03 0.0062
 Ra-226  1.257E-01 0.3384  1.279E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.461E-03 0.0039
 Ra-228  6.395E-02 0.1722  1.159E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.161E-04 0.0009
 Th-228  2.582E-03 0.0070  6.599E-06 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.931E-06 0.0000
 Th-230  5.869E-04 0.0016  2.782E-04 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.447E-04 0.0007
 Th-232  1.163E-01 0.3132  1.576E-03 0.0042  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.857E-03 0.0050
 U-234   4.674E-06 0.0000  1.126E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.239E-04 0.0003
 U-235   8.655E-03 0.0233  1.053E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.183E-04 0.0003
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 U-238   1.717E-03 0.0046  1.007E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.176E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.446E-01 0.9278  9.149E-03 0.0246  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.766E-02 0.0476
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.511E-02 0.0676
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.786E-02 0.0481
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.362E-03 0.0064
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.272E-01 0.3424
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.438E-02 0.1734
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.597E-03 0.0070
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.110E-03 0.0030
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.197E-01 0.3224
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.412E-04 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.878E-03 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.935E-03 0.0052
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.714E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  17
 Summary : TTLF Recreational Adult - Re-baseline March 2010
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File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

0

Water Independent Pathways (Inhalation excludes radon)

0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	8.655E-03	0.0233	2.171E-03	0.0058	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.453E-03	0.0066
Pa-231	1.635E-02	0.0440	4.651E-03	0.0125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.658E-03	0.0233
Pb-210	2.715E-05	0.0001	7.643E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.231E-03	0.0033
Ra-226	1.246E-01	0.3356	1.925E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.505E-03	0.0067
Ra-228	6.082E-03	0.0164	1.128E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.942E-05	0.0001
Th-228	1.840E-06	0.0000	4.703E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.652E-09	0.0000
Th-230	1.671E-03	0.0045	2.782E-04	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.623E-04	0.0007
Th-232	1.767E-01	0.4760	1.687E-03	0.0045	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.151E-03	0.0058
U-234	4.874E-06	0.0000	1.126E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.239E-04	0.0003
U-235	8.653E-03	0.0233	1.069E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.215E-04	0.0003
U-238	1.715E-03	0.0046	1.006E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.176E-04	0.0003
Total	3.445E-01	0.9278	9.145E-03	0.0246	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.765E-02	0.0475

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

0

Water Dependent Pathways

0

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.

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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.328E-02 0.0358
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.966E-02 0.0799
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.265E-03 0.0034
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.271E-01 0.3424
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.123E-03 0.0165
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.851E-06 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.211E-03 0.0060
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.806E-01 0.4863
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.413E-04 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.882E-03 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.933E-03 0.0052
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.713E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  18
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                       As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  9.304E-04 0.0025  2.334E-04 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.636E-04 0.0007
 Pa-231  2.400E-02 0.0647  6.568E-03 0.0177  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.081E-02 0.0291
 Pb-210  3.056E-06 0.0000  8.605E-07 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.386E-04 0.0004
 Ra-226  1.209E-01 0.3258  2.528E-05 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.495E-03 0.0094
 Ra-228  1.316E-06 0.0000  2.442E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.365E-09 0.0000
 Th-228  1.778E-17 0.0000  4.543E-20 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.460E-20 0.0000
 Th-230  5.387E-03 0.0145  2.785E-04 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.585E-04 0.0010
 Th-232  1.827E-01 0.4924  1.696E-03 0.0046  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.179E-03 0.0059
 U-234   7.086E-06 0.0000  1.124E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.237E-04 0.0003
 U-235   8.661E-03 0.0233  1.154E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.361E-04 0.0004
 U-238   1.710E-03 0.0046  1.003E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.173E-04 0.0003
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.442E-01 0.9279  9.131E-03 0.0246  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.763E-02 0.0475
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                    As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.427E-03 0.0038
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.139E-02 0.1116
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.425E-04 0.0004
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.244E-01 0.3352
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  1.325E-06 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.788E-17 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.024E-03 0.0162
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.865E-01 0.5028
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.432E-04 0.0007
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.912E-03 0.0240
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.928E-03 0.0052
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.710E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  19
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.589E-06 0.0000  3.986E-07 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.503E-07 0.0000
 Pa-231  2.471E-02 0.0668  6.741E-03 0.0182  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.098E-02 0.0297
 Pb-210  5.960E-09 0.0000  1.678E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.702E-07 0.0000
 Ra-226  1.107E-01 0.2990  2.395E-05 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.328E-03 0.0090
 Ra-228  4.447E-17 0.0000  8.251E-20 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.151E-19 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  1.537E-02 0.0415  2.795E-04 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.559E-04 0.0018
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 Th-232  1.823E-01 0.4925  1.693E-03 0.0046  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.174E-03 0.0059
 U-234   2.578E-05 0.0001  1.119E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.235E-04 0.0003
 U-235   8.696E-03 0.0235  1.428E-04 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.813E-04 0.0005
 U-238   1.697E-03 0.0046  9.961E-05 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.164E-04 0.0003
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.434E-01 0.9280  9.092E-03 0.0246  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.756E-02 0.0474
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.438E-06 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.243E-02 0.1146
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.779E-07 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.140E-01 0.3081
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.477E-17 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.630E-02 0.0441
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.861E-01 0.5029
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.613E-04 0.0007
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.020E-03 0.0244
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.913E-03 0.0052
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.701E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  20
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon              Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  3.273E-16 0.0000  8.211E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.275E-17 0.0000
 Pa-231  2.395E-02 0.0653  6.533E-03 0.0178  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.064E-02 0.0290
 Pb-210  1.952E-18 0.0000  5.496E-19 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.850E-17 0.0000
 Ra-226  8.132E-02 0.2216  1.760E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.446E-03 0.0067
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  4.382E-02 0.1194  2.818E-04 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.509E-03 0.0041
 Th-232  1.809E-01 0.4929  1.680E-03 0.0046  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.158E-03 0.0059
 U-234   2.140E-04 0.0006  1.104E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.268E-04 0.0003
 U-235   8.811E-03 0.0240  2.358E-04 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.341E-04 0.0009
 U-238   1.650E-03 0.0045  9.707E-05 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.134E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.406E-01 0.9284  8.955E-03 0.0244  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.733E-02 0.0472
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
```

```
(p)
                                        As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                                   Water Dependent Pathways
0              Water              Fish              Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.022E-16 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.112E-02 0.1121
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.101E-17 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.378E-02 0.2283
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.561E-02 0.1243
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.847E-01 0.5034
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.511E-04 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.381E-03 0.0256
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.861E-03 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.669E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  21
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                                     Dose/Source Ratios Summed Over All Pathways

                          Parent and Progeny Principal Radionuclide Contributions Indicated

0  Parent    Product    Thread                    DSR(j,t) At Time in Years   (mrem/yr)/(pCi/g)
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    (i)        (j)     Fraction   0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02
1.000E+03
 ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ
 Ac-227+D   Ac-227+D   1.000E+00  3.454E-02 3.345E-02 3.139E-02 2.511E-02 1.328E-02 1.427E-03 2.438E-06
5.022E-16
0Pa-231     Pa-231     1.000E+00  7.898E-03 7.897E-03 7.896E-03 7.894E-03 7.887E-03 7.862E-03 7.792E-03
7.551E-03
 Pa-231     Ac-227+D   1.000E+00  5.527E-04 1.635E-03 3.698E-03 9.966E-03 2.178E-02 3.352E-02 3.464E-02
3.357E-02
 Pa-231     äDSR(j)               8.450E-03 9.532E-03 1.159E-02 1.786E-02 2.966E-02 4.139E-02 4.243E-02
4.112E-02
0Pb-210+D   Pb-210+D   1.000E+00  3.227E-03 3.127E-03 2.938E-03 2.362E-03 1.265E-03 1.425E-04 2.779E-07
9.101E-17
0Ra-226+D   Ra-226+D   1.000E+00  1.268E-01 1.268E-01 1.266E-01 1.263E-01 1.251E-01 1.213E-01 1.111E-01
8.165E-02
 Ra-226+D   Pb-210+D   1.000E+00  5.040E-05 1.491E-04 3.374E-04 9.097E-04 1.989E-03 3.024E-03 2.901E-03
2.132E-03
 Ra-226+D   äDSR(j)               1.269E-01 1.269E-01 1.270E-01 1.272E-01 1.271E-01 1.244E-01 1.140E-01
8.378E-02
0Ra-228+D   Ra-228+D   1.000E+00  6.424E-02 5.694E-02 4.474E-02 1.924E-02 1.726E-03 3.734E-07 1.262E-17
0.000E+00
 Ra-228+D   Th-228+D   1.000E+00  1.793E-02 4.365E-02 6.487E-02 4.514E-02 4.397E-03 9.516E-07 3.215E-17
0.000E+00
 Ra-228+D   äDSR(j)               8.217E-02 1.006E-01 1.096E-01 6.438E-02 6.123E-03 1.325E-06 4.477E-17
0.000E+00
0Th-228+D   Th-228+D   1.000E+00  9.727E-02 6.771E-02 3.280E-02 2.597E-03 1.851E-06 1.788E-17 0.000E+00
0.000E+00
0Th-230     Th-230     1.000E+00  5.321E-04 5.321E-04 5.321E-04 5.320E-04 5.318E-04 5.310E-04 5.289E-04
5.215E-04
 Th-230     Ra-226+D   1.000E+00  2.747E-05 8.239E-05 1.922E-04 5.756E-04 1.664E-03 5.396E-03 1.542E-02
4.399E-02
 Th-230     Pb-210+D   1.000E+00  7.297E-09 5.062E-08 2.622E-07 2.185E-06 1.523E-05 9.698E-05 3.568E-04
1.103E-03
 Th-230     äDSR(j)               5.596E-04 6.145E-04 7.245E-04 1.110E-03 2.211E-03 6.024E-03 1.630E-02
4.561E-02
0Th-232     Th-232     1.000E+00  2.601E-03 2.601E-03 2.601E-03 2.601E-03 2.600E-03 2.598E-03 2.593E-03
2.573E-03
 Th-232     Ra-228+D   1.000E+00  3.950E-03 1.124E-02 2.344E-02 4.894E-02 6.644E-02 6.811E-02 6.796E-02
6.744E-02
 Th-232     Th-228+D   1.000E+00  7.497E-04 4.600E-03 1.829E-02 6.821E-02 1.115E-01 1.158E-01 1.156E-01
1.147E-01
 Th-232     äDSR(j)               7.300E-03 1.845E-02 4.433E-02 1.197E-01 1.806E-01 1.865E-01 1.861E-01
1.847E-01
0U-234      U-234      1.000E+00  2.412E-04 2.412E-04 2.412E-04 2.411E-04 2.409E-04 2.402E-04 2.381E-04
2.311E-04
 U-234      Th-230     1.000E+00  2.395E-09 7.185E-09 1.676E-08 5.028E-08 1.460E-07 4.799E-07 1.426E-06
4.644E-06
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 U-234      Ra-226+D   1.000E+00  8.243E-11 5.769E-10 3.048E-09 2.724E-08 2.289E-07 2.456E-06 2.124E-05
2.103E-04
 U-234      Pb-210+D   1.000E+00  1.645E-14 2.451E-13 2.816E-12 7.081E-11 1.499E-09 3.530E-08 4.445E-07
5.101E-06
 U-234      äDSR(j)               2.412E-04 2.412E-04 2.412E-04 2.412E-04 2.413E-04 2.432E-04 2.613E-04
4.511E-04
0U-235+D    U-235+D    1.000E+00  8.879E-03 8.879E-03 8.878E-03 8.876E-03 8.868E-03 8.844E-03 8.773E-03
8.531E-03
 U-235+D    Pa-231     1.000E+00  8.355E-08 2.506E-07 5.848E-07 1.754E-06 5.090E-06 1.672E-05 4.958E-05
1.602E-04
 U-235+D    Ac-227+D   1.000E+00  3.908E-09 2.711E-08 1.404E-07 1.169E-06 8.146E-06 5.204E-05 1.973E-04
6.899E-04
 U-235+D    äDSR(j)               8.879E-03 8.879E-03 8.879E-03 8.878E-03 8.882E-03 8.912E-03 9.020E-03
9.381E-03
0U-238      U-238      5.400E-05  1.153E-08 1.153E-08 1.153E-08 1.153E-08 1.152E-08 1.149E-08 1.140E-08
1.108E-08
0U-238+D    U-238+D    9.999E-01  1.936E-03 1.936E-03 1.935E-03 1.935E-03 1.933E-03 1.928E-03 1.913E-03
1.860E-03
 U-238+D    U-234      9.999E-01  3.419E-10 1.026E-09 2.393E-09 7.177E-09 2.083E-08 6.844E-08 2.030E-07
6.564E-07
 U-238+D    Th-230     9.999E-01  2.263E-15 1.584E-14 8.372E-14 7.488E-13 6.310E-12 6.834E-11 6.068E-10
6.567E-09
 U-238+D    Ra-226+D   9.999E-01  5.842E-17 8.762E-16 1.022E-14 2.708E-13 6.605E-12 2.340E-10 6.090E-09
2.049E-07
 U-238+D    Pb-210+D   9.999E-01  9.336E-21 2.878E-19 7.165E-18 5.366E-16 3.385E-14 2.820E-12 1.165E-10
4.818E-09
 U-238+D    äDSR(j)               1.936E-03 1.936E-03 1.935E-03 1.935E-03 1.933E-03 1.928E-03 1.913E-03
1.861E-03
 ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍÍ
 The DSR includes contributions from associated (half-life ó 180 days) daughters.

1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  22
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                         Single Radionuclide Soil Guidelines G(i,t) in pCi/g

                            Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide
   (i)    t= 0.000E+00   1.000E+00   3.000E+00   1.000E+01   3.000E+01   1.000E+02   3.000E+02   1.000E+03
 ÄÄÄÄÄÄÄ     ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄÄ
 Ac-227      7.238E+02   7.473E+02   7.964E+02   9.955E+02   1.883E+03   1.751E+04   1.025E+07  *7.232E+13

 Pa-231      2.959E+03   2.623E+03   2.156E+03   1.400E+03   8.428E+02   6.041E+02   5.892E+02   6.080E+02

 Pb-210      7.748E+03   7.994E+03   8.508E+03   1.059E+04   1.976E+04   1.755E+05   8.997E+07  *7.634E+13
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Ra-226	1.971E+02	1.970E+02	1.969E+02	1.966E+02	1.966E+02	2.010E+02	2.193E+02	2.984E+02
Ra-228	3.042E+02	2.485E+02	2.281E+02	3.883E+02	4.083E+03	1.887E+07	*2.726E+14	*2.726E+14
Th-228	2.570E+02	3.692E+02	7.621E+02	9.627E+03	1.351E+07	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	4.468E+04	4.068E+04	3.451E+04	2.253E+04	1.131E+04	4.150E+03	1.533E+03	5.481E+02
Th-232	3.424E+03	1.355E+03	5.640E+02	2.088E+02	1.385E+02	1.340E+02	1.343E+02	1.354E+02
U-234	1.036E+05	1.036E+05	1.036E+05	1.036E+05	1.036E+05	1.028E+05	9.569E+04	5.542E+04
U-235	2.816E+03	2.816E+03	2.816E+03	2.816E+03	2.815E+03	2.805E+03	2.772E+03	2.665E+03
U-238	1.292E+04	1.292E+04	1.292E+04	1.292E+04	1.293E+04	1.297E+04	1.307E+04	1.344E+04
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ

*At specific activity limit

0

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ
Ac-227	1.000E+00	0.000E+00	3.454E-02	7.238E+02	3.454E-02	7.238E+02
Pa-231	1.000E+00	199.6 ñ 0.4	4.256E-02	5.873E+02	8.450E-03	2.959E+03
Pb-210	1.000E+00	0.000E+00	3.227E-03	7.748E+03	3.227E-03	7.748E+03
Ra-226	1.000E+00	18.61 ñ 0.04	1.272E-01	1.965E+02	1.269E-01	1.971E+02
Ra-228	1.000E+00	2.702 ñ 0.005	1.098E-01	2.277E+02	8.217E-02	3.042E+02
Th-228	1.000E+00	0.000E+00	9.727E-02	2.570E+02	9.727E-02	2.570E+02
Th-230	1.000E+00	1.000E+03	4.561E-02	5.481E+02	5.596E-04	4.468E+04
Th-232	1.000E+00	78.5 ñ 0.2	1.866E-01	1.340E+02	7.300E-03	3.424E+03
U-234	1.000E+00	1.000E+03	4.511E-04	5.542E+04	2.412E-04	1.036E+05
U-235	1.000E+00	1.000E+03	9.381E-03	2.665E+03	8.879E-03	2.816E+03
U-238	1.000E+00	0.000E+00	1.936E-03	1.292E+04	1.936E-03	1.292E+04
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02

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1.000E+03
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    3.454E-02 3.345E-02 3.139E-02 2.511E-02 1.328E-02 1.427E-03 2.438E-06
5.022E-16
 Ac-227  Pa-231  1.000E+00    5.527E-04 1.635E-03 3.698E-03 9.966E-03 2.178E-02 3.352E-02 3.464E-02
3.357E-02
 Ac-227  U-235   1.000E+00    3.908E-09 2.711E-08 1.404E-07 1.169E-06 8.146E-06 5.204E-05 1.973E-04
6.899E-04
 Ac-227  äDOSE(j)            3.509E-02 3.509E-02 3.509E-02 3.508E-02 3.506E-02 3.500E-02 3.484E-02
3.426E-02
0Pa-231  Pa-231  1.000E+00    7.898E-03 7.897E-03 7.896E-03 7.894E-03 7.887E-03 7.862E-03 7.792E-03
7.551E-03
 Pa-231  U-235   1.000E+00    8.355E-08 2.506E-07 5.848E-07 1.754E-06 5.090E-06 1.672E-05 4.958E-05
1.602E-04
 Pa-231  äDOSE(j)            7.898E-03 7.897E-03 7.897E-03 7.896E-03 7.892E-03 7.879E-03 7.841E-03
7.711E-03
0Pb-210  Pb-210  1.000E+00    3.227E-03 3.127E-03 2.938E-03 2.362E-03 1.265E-03 1.425E-04 2.779E-07
9.101E-17
 Pb-210  Ra-226  1.000E+00    5.040E-05 1.491E-04 3.374E-04 9.097E-04 1.989E-03 3.024E-03 2.901E-03
2.132E-03
 Pb-210  Th-230  1.000E+00    7.297E-09 5.062E-08 2.622E-07 2.185E-06 1.523E-05 9.698E-05 3.568E-04
1.103E-03
 Pb-210  U-234   1.000E+00    1.645E-14 2.451E-13 2.816E-12 7.081E-11 1.499E-09 3.530E-08 4.445E-07
5.101E-06
 Pb-210  U-238   9.999E-01    9.336E-21 2.878E-19 7.165E-18 5.366E-16 3.385E-14 2.820E-12 1.165E-10
4.818E-09
 Pb-210  äDOSE(j)            3.277E-03 3.277E-03 3.276E-03 3.274E-03 3.269E-03 3.264E-03 3.259E-03
3.240E-03
0Ra-226  Ra-226  1.000E+00    1.268E-01 1.268E-01 1.266E-01 1.263E-01 1.251E-01 1.213E-01 1.111E-01
8.165E-02
 Ra-226  Th-230  1.000E+00    2.747E-05 8.239E-05 1.922E-04 5.756E-04 1.664E-03 5.396E-03 1.542E-02
4.399E-02
 Ra-226  U-234   1.000E+00    8.243E-11 5.769E-10 3.048E-09 2.724E-08 2.289E-07 2.456E-06 2.124E-05
2.103E-04
 Ra-226  U-238   9.999E-01    5.842E-17 8.762E-16 1.022E-14 2.708E-13 6.605E-12 2.340E-10 6.090E-09
2.049E-07
 Ra-226  äDOSE(j)            1.268E-01 1.268E-01 1.268E-01 1.268E-01 1.268E-01 1.267E-01 1.266E-01
1.258E-01
0Ra-228  Ra-228  1.000E+00    6.424E-02 5.694E-02 4.474E-02 1.924E-02 1.726E-03 3.734E-07 1.262E-17
0.000E+00
 Ra-228  Th-232  1.000E+00    3.950E-03 1.124E-02 2.344E-02 4.894E-02 6.644E-02 6.811E-02 6.796E-02
6.744E-02
 Ra-228  äDOSE(j)            6.819E-02 6.819E-02 6.818E-02 6.818E-02 6.817E-02 6.811E-02 6.796E-02
6.744E-02
0Th-228  Ra-228  1.000E+00    1.793E-02 4.365E-02 6.487E-02 4.514E-02 4.397E-03 9.516E-07 3.215E-17
0.000E+00
 Th-228  Th-228  1.000E+00    9.727E-02 6.771E-02 3.280E-02 2.597E-03 1.851E-06 1.788E-17 0.000E+00
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0.000E+00
 Th-228  Th-232  1.000E+00    7.497E-04 4.600E-03 1.829E-02 6.821E-02 1.115E-01 1.158E-01 1.156E-01
1.147E-01
 Th-228  äDOSE(j)            1.160E-01 1.160E-01 1.160E-01 1.159E-01 1.159E-01 1.158E-01 1.156E-01
1.147E-01
0Th-230  Th-230  1.000E+00    5.321E-04 5.321E-04 5.321E-04 5.320E-04 5.318E-04 5.310E-04 5.289E-04
5.215E-04
 Th-230  U-234   1.000E+00    2.395E-09 7.185E-09 1.676E-08 5.028E-08 1.460E-07 4.799E-07 1.426E-06
4.644E-06
 Th-230  U-238   9.999E-01    2.263E-15 1.584E-14 8.372E-14 7.488E-13 6.310E-12 6.834E-11 6.068E-10
6.567E-09
 Th-230  äDOSE(j)            5.321E-04 5.321E-04 5.321E-04 5.320E-04 5.319E-04 5.315E-04 5.303E-04
5.262E-04
0Th-232  Th-232  1.000E+00    2.601E-03 2.601E-03 2.601E-03 2.601E-03 2.600E-03 2.598E-03 2.593E-03
2.573E-03
0U-234   U-234   1.000E+00    2.412E-04 2.412E-04 2.412E-04 2.411E-04 2.409E-04 2.402E-04 2.381E-04
2.311E-04
 U-234   U-238   9.999E-01    3.419E-10 1.026E-09 2.393E-09 7.177E-09 2.083E-08 6.844E-08 2.030E-07
6.564E-07
 U-234   äDOSE(j)            2.412E-04 2.412E-04 2.412E-04 2.411E-04 2.409E-04 2.403E-04 2.383E-04
2.318E-04
0U-235   U-235   1.000E+00    8.879E-03 8.879E-03 8.878E-03 8.876E-03 8.868E-03 8.844E-03 8.773E-03
8.531E-03
0U-238   U-238   5.400E-05    1.153E-08 1.153E-08 1.153E-08 1.153E-08 1.152E-08 1.149E-08 1.140E-08
1.108E-08
 U-238   U-238   9.999E-01    1.936E-03 1.936E-03 1.935E-03 1.935E-03 1.933E-03 1.928E-03 1.913E-03
1.860E-03
 U-238   äDOSE(j)            1.936E-03 1.936E-03 1.935E-03 1.935E-03 1.933E-03 1.928E-03 1.913E-03
1.860E-03
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ    ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍ
 THF(i) is the thread fraction of the parent nuclide.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:22  Page  24
 Summary : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                                   Individual Nuclide Soil Concentration
                                 Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                        S(j,t), pCi/g
   (j)     (i)             t= 0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02
1.000E+03
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    1.000E+00 9.686E-01 9.088E-01 7.272E-01 3.845E-01 4.133E-02 7.059E-05
1.454E-14
 Ac-227  Pa-231  1.000E+00    0.000E+00 3.133E-02 9.108E-02 2.726E-01 6.145E-01 9.547E-01 9.871E-01
9.567E-01
 Ac-227  U-235   1.000E+00    0.000E+00 3.332E-07 2.937E-06 3.036E-05 2.256E-04 1.473E-03 5.613E-03
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1.965E-02
 Ac-227  äS(j):                1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.992E-01 9.975E-01 9.928E-01
9.763E-01
0Pa-231  Pa-231  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.987E-01 9.955E-01 9.866E-01
9.561E-01
 Pa-231  U-235   1.000E+00    0.000E+00 2.116E-05 6.347E-05 2.115E-04 6.339E-04 2.107E-03 6.267E-03
2.028E-02
 Pa-231  äS(j):                1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.976E-01 9.929E-01
9.764E-01
0Pb-210  Pb-210  1.000E+00    1.000E+00 9.693E-01 9.106E-01 7.320E-01 3.922E-01 4.416E-02 8.612E-05
2.821E-14
 Pb-210  Ra-226  1.000E+00    0.000E+00 3.060E-02 8.896E-02 2.664E-01 6.009E-01 9.224E-01 8.854E-01
6.506E-01
 Pb-210  Th-230  1.000E+00    0.000E+00 6.662E-06 5.872E-05 6.074E-04 4.518E-03 2.939E-02 1.087E-01
3.366E-01
 Pb-210  U-234   1.000E+00    0.000E+00 2.004E-11 5.327E-10 1.870E-08 4.367E-07 1.064E-05 1.351E-04
1.555E-03
 Pb-210  U-238   9.999E-01    0.000E+00 1.423E-17 1.138E-15 1.345E-13 9.692E-12 8.454E-10 3.536E-08
1.468E-06
 Pb-210  äS(j):                1.000E+00 9.999E-01 9.997E-01 9.990E-01 9.977E-01 9.959E-01 9.943E-01
9.888E-01
0Ra-226  Ra-226  1.000E+00    1.000E+00 9.996E-01 9.987E-01 9.956E-01 9.869E-01 9.569E-01 8.763E-01
6.439E-01
 Ra-226  Th-230  1.000E+00    0.000E+00 4.331E-04 1.299E-03 4.322E-03 1.291E-02 4.234E-02 1.214E-01
3.467E-01
 Ra-226  U-234   1.000E+00    0.000E+00 1.950E-09 1.754E-08 1.947E-07 1.746E-06 1.918E-05 1.669E-04
1.656E-03
 Ra-226  U-238   9.999E-01    0.000E+00 1.842E-15 4.973E-14 1.840E-12 4.955E-11 1.818E-09 4.778E-08
1.613E-06
 Ra-226  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.978E-01
9.922E-01
0Ra-228  Ra-228  1.000E+00    1.000E+00 8.864E-01 6.965E-01 2.995E-01 2.687E-02 5.813E-06 1.964E-16
0.000E+00
 Ra-228  Th-232  1.000E+00    0.000E+00 1.136E-01 3.035E-01 7.004E-01 9.728E-01 9.989E-01 9.967E-01
9.890E-01
 Ra-228  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0Th-228  Ra-228  1.000E+00    0.000E+00 2.853E-01 5.384E-01 4.089E-01 4.024E-02 8.711E-06 2.943E-16
0.000E+00
 Th-228  Th-228  1.000E+00    1.000E+00 6.961E-01 3.372E-01 2.670E-02 1.902E-05 1.838E-16 0.000E+00
0.000E+00
 Th-228  Th-232  1.000E+00    0.000E+00 1.864E-02 1.243E-01 5.643E-01 9.594E-01 9.989E-01 9.967E-01
9.890E-01
 Th-228  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0Th-230  Th-230  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.994E-01 9.980E-01 9.940E-01
9.802E-01
 Th-230  U-234   1.000E+00    0.000E+00 9.002E-06 2.700E-05 8.999E-05 2.698E-04 8.974E-04 2.675E-03
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8.723E-03
 Th-230  U-238   9.999E-01    0.000E+00 1.276E-11 1.148E-10 1.275E-09 1.147E-08 1.272E-07 1.137E-06
1.233E-05
 Th-230  äS(j):               1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.889E-01
0Th-232  Th-232  1.000E+00    1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0U-234   U-234   1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.987E-01 9.957E-01 9.872E-01
9.580E-01
 U-234   U-238   9.999E-01    0.000E+00 2.835E-06 8.503E-06 2.834E-05 8.494E-05 2.823E-04 8.399E-04
2.720E-03
 U-234   äS(j):               1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
0U-235   U-235   1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
0U-238   U-238   5.400E-05    5.400E-05 5.400E-05 5.399E-05 5.398E-05 5.394E-05 5.378E-05 5.336E-05
5.188E-05
 U-238   U-238   9.999E-01    9.999E-01 9.999E-01 9.998E-01 9.995E-01 9.987E-01 9.960E-01 9.880E-01
9.607E-01
 U-238   äS(j):               1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ    ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍ
 THF(i) is the thread fraction of the parent nuclide.
0RESCALC.EXE execution time =   12.00 seconds
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Appendix G-4
RESRAD Risk Output for Trespasser Adult

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Part III: Intake Quantities and Health Risk Factors
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Cancer Risk Slope Factors 2
Risk Slope and ETFG for the Ground Pathway 4
Amount of Intake Quantities and Excess Cancer Risks
Time= 0.000E+00 5
Time= 1.000E+00 9
Time= 3.000E+00 13
Time= 1.000E+01 17
Time= 3.000E+01 21
Time= 1.000E+02 25
Time= 3.000E+02 29
Time= 1.000E+03 33

Cancer Risk Slope Factors Summary Table
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-1	Ground external radiation slope factors, 1/yr per (pCi/g):			
Sf-1	Ac-227+D	1.47E-06	3.48E-10	SLPF(1,1)
Sf-1	Pa-231	1.39E-07	1.39E-07	SLPF(2,1)
Sf-1	Pb-210+D	4.21E-09	1.41E-09	SLPF(3,1)
Sf-1	Ra-226+D	8.49E-06	2.29E-08	SLPF(4,1)
Sf-1	Ra-228+D	4.53E-06	0.00E+00	SLPF(5,1)
Sf-1	Th-228+D	7.76E-06	5.59E-09	SLPF(6,1)
Sf-1	Th-230	8.19E-10	8.19E-10	SLPF(7,1)
Sf-1	Th-232	3.42E-10	3.42E-10	SLPF(8,1)
Sf-1	U-234	2.52E-10	2.52E-10	SLPF(9,1)
Sf-1	U-235+D	5.43E-07	5.18E-07	SLPF(10,1)
Sf-1	U-238	4.99E-11	4.99E-11	SLPF(11,1)
Sf-1	U-238+D	1.14E-07	4.99E-11	SLPF(12,1)
Sf-2	Inhalation, slope factors, 1/(pCi):			

Sf-2	Ac-227+D	2.13E-07	1.49E-07	SLPF(1,2)
Sf-2	Pa-231	7.62E-08	7.62E-08	SLPF(2,2)
Sf-2	Pb-210+D	3.08E-08	1.58E-08	SLPF(3,2)
Sf-2	Ra-226+D	2.83E-08	2.82E-08	SLPF(4,2)
Sf-2	Ra-228+D	4.37E-08	4.37E-08	SLPF(5,2)
Sf-2	Th-228+D	1.44E-07	1.32E-07	SLPF(6,2)
Sf-2	Th-230	3.40E-08	3.40E-08	SLPF(7,2)
Sf-2	Th-232	4.33E-08	4.33E-08	SLPF(8,2)
Sf-2	U-234	2.78E-08	2.78E-08	SLPF(9,2)
Sf-2	U-235+D	2.50E-08	2.50E-08	SLPF(10,2)
Sf-2	U-238	2.36E-08	2.36E-08	SLPF(11,2)
Sf-2	U-238+D	2.36E-08	2.36E-08	SLPF(12,2)
Sf-3	Food ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	6.53E-10	2.45E-10	SLPF(1,3)
Sf-3	Pa-231	2.26E-10	2.26E-10	SLPF(2,3)
Sf-3	Pb-210+D	3.44E-09	1.18E-09	SLPF(3,3)
Sf-3	Ra-226+D	5.15E-10	5.14E-10	SLPF(4,3)
Sf-3	Ra-228+D	1.43E-09	1.43E-09	SLPF(5,3)
Sf-3	Th-228+D	4.22E-10	1.48E-10	SLPF(6,3)
Sf-3	Th-230	1.19E-10	1.19E-10	SLPF(7,3)
Sf-3	Th-232	1.33E-10	1.33E-10	SLPF(8,3)
Sf-3	U-234	9.55E-11	9.55E-11	SLPF(9,3)
Sf-3	U-235+D	9.76E-11	9.44E-11	SLPF(10,3)
Sf-3	U-238	8.66E-11	8.66E-11	SLPF(11,3)
Sf-3	U-238+D	1.21E-10	8.66E-11	SLPF(12,3)
Sf-3	Water ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	4.86E-10	2.01E-10	SLPF(1,4)
Sf-3	Pa-231	1.73E-10	1.73E-10	SLPF(2,4)
Sf-3	Pb-210+D	2.66E-09	8.81E-10	SLPF(3,4)
Sf-3	Ra-226+D	3.86E-10	3.85E-10	SLPF(4,4)
Sf-3	Ra-228+D	1.04E-09	1.04E-09	SLPF(5,4)
Sf-3	Th-228+D	2.99E-10	1.07E-10	SLPF(6,4)
Sf-3	Th-230	9.10E-11	9.10E-11	SLPF(7,4)

Cancer Risk Slope Factors Summary Table (continued)
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name

```
 Sf-3  ³ Th-232                                              ³ 1.01E-10  ³ 1.01E-10  ³ SLPF(  8,4)
 Sf-3  ³ U-234                                               ³ 7.07E-11  ³ 7.07E-11  ³ SLPF(  9,4)
 Sf-3  ³ U-235+D                                             ³ 7.18E-11  ³ 6.96E-11  ³ SLPF( 10,4)
 Sf-3  ³ U-238                                               ³ 6.40E-11  ³ 6.40E-11  ³ SLPF( 11,4)
 Sf-3  ³ U-238+D                                             ³ 8.71E-11  ³ 6.40E-11  ³ SLPF( 12,4)
       ³                                                     ³           ³           ³
 Sf-3  ³ Soil ingestion, slope factors, 1/(pCi):             ³           ³           ³
 Sf-3  ³ Ac-227+D                                            ³ 6.53E-10  ³ 2.45E-10  ³ SLPF(  1,5)
 Sf-3  ³ Pa-231                                              ³ 2.26E-10  ³ 2.26E-10  ³ SLPF(  2,5)
 Sf-3  ³ Pb-210+D                                            ³ 3.44E-09  ³ 1.18E-09  ³ SLPF(  3,5)
 Sf-3  ³ Ra-226+D                                            ³ 5.15E-10  ³ 5.14E-10  ³ SLPF(  4,5)
 Sf-3  ³ Ra-228+D                                            ³ 1.43E-09  ³ 1.43E-09  ³ SLPF(  5,5)
 Sf-3  ³ Th-228+D                                            ³ 4.22E-10  ³ 1.48E-10  ³ SLPF(  6,5)
 Sf-3  ³ Th-230                                              ³ 1.19E-10  ³ 1.19E-10  ³ SLPF(  7,5)
 Sf-3  ³ Th-232                                              ³ 1.33E-10  ³ 1.33E-10  ³ SLPF(  8,5)
 Sf-3  ³ U-234                                               ³ 9.55E-11  ³ 9.55E-11  ³ SLPF(  9,5)
 Sf-3  ³ U-235+D                                             ³ 9.76E-11  ³ 9.44E-11  ³ SLPF( 10,5)
 Sf-3  ³ U-238                                               ³ 8.66E-11  ³ 8.66E-11  ³ SLPF( 11,5)
 Sf-3  ³ U-238+D                                             ³ 1.21E-10  ³ 8.66E-11  ³ SLPF( 12,5)
       ³                                                     ³           ³           ³
 Sf-Rn ³ Radon Inhalation slope factors, 1/(pCi):            ³           ³           ³
 Sf-Rn ³ Rn-222                                              ³ 1.80E-12  ³ 1.80E-12  ³ SLPFRN(1,1)
 Sf-Rn ³ Po-218                                              ³ 3.70E-12  ³ 3.70E-12  ³ SLPFRN(1,2)
 Sf-Rn ³ Pb-214                                              ³ 6.20E-12  ³ 6.20E-12  ³ SLPFRN(1,3)
 Sf-Rn ³ Bi-214                                              ³ 1.50E-11  ³ 1.50E-11  ³ SLPFRN(1,4)
 Sf-Rn ³ Rn-220                                              ³ 1.90E-13  ³ 1.90E-13  ³ SLPFRN(2,1)
 Sf-Rn ³ Po-216                                              ³ 3.00E-15  ³ 3.00E-15  ³ SLPFRN(2,2)
 Sf-Rn ³ Pb-212                                              ³ 3.90E-11  ³ 3.90E-11  ³ SLPFRN(2,3)
 Sf-Rn ³ Bi-212                                              ³ 3.70E-11  ³ 3.70E-11  ³ SLPFRN(2,4)
       ³                                                     ³           ³           ³
 Sf-Rn ³ Radon K factors, (mrem/WLM):                        ³           ³           ³
 Sf-Rn ³ Rn-222 Indoor                                       ³ 7.60E+02  ³ 7.60E+02  ³ KFACTR(1,1)
 Sf-Rn ³ Rn-222 Outdoor                                      ³ 5.70E+02  ³ 5.70E+02  ³ KFACTR(1,2)
 Sf-Rn ³ Rn-220 Indoor                                       ³ 1.50E+02  ³ 1.50E+02  ³ KFACTR(2,1)
 Sf-Rn ³ Rn-220 Outdoor                                      ³ 2.50E+02  ³ 2.50E+02  ³ KFACTR(2,2)
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 *Base Case means Default.Lib w/o Associate Nuclide contributions.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page   4
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                      Risk Slope and Environmental Transport Factors for the Ground Pathway

0Nuclide  Slope(i)*                         ETFG(i,t) At Time in Years  (dimensionless)
```

(i)		t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Ac-227	3.480E-10	1.148E-02	1.148E-02	1.148E-02	1.148E-02	1.148E-02	1.148E-02	1.148E-02	1.148E-02
Ac-228	4.530E-06	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02	1.130E-02
At-218	3.570E-09	1.164E-02	1.164E-02	1.164E-02	1.164E-02	1.164E-02	1.164E-02	1.164E-02	1.164E-02
Bi-210	2.760E-09	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02
Bi-211	1.880E-07	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02	1.134E-02
Bi-212	8.870E-07	1.125E-02	1.125E-02	1.125E-02	1.125E-02	1.125E-02	1.125E-02	1.125E-02	1.125E-02
Bi-214	7.480E-06	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02
Fr-223	1.400E-07	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02
Pa-231	1.390E-07	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02
Pa-234	8.710E-06	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02
Pa-234m	6.870E-08	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02
Pb-210	1.410E-09	1.178E-02	1.178E-02	1.178E-02	1.178E-02	1.178E-02	1.178E-02	1.178E-02	1.178E-02
Pb-211	2.290E-07	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02
Pb-212	5.090E-07	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02
Pb-214	9.820E-07	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02
Po-210	3.950E-11	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02
Po-211	3.580E-08	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02
Po-212	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-214	3.860E-10	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02	1.123E-02
Po-215	7.480E-10	1.129E-02	1.129E-02	1.129E-02	1.129E-02	1.129E-02	1.129E-02	1.129E-02	1.129E-02
Po-216	7.870E-11	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02
Po-218	4.260E-11	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02	1.127E-02
Ra-223	4.340E-07	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02
Ra-224	3.720E-08	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02	1.140E-02
Ra-226	2.290E-08	1.143E-02	1.143E-02	1.143E-02	1.143E-02	1.143E-02	1.143E-02	1.143E-02	1.143E-02
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rn-219	2.250E-07	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02	1.135E-02
Rn-220	1.700E-09	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02
Rn-222	1.740E-09	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02	1.124E-02
Th-227	3.780E-07	1.141E-02	1.141E-02	1.141E-02	1.141E-02	1.141E-02	1.141E-02	1.141E-02	1.141E-02
Th-228	5.590E-09	1.146E-02	1.146E-02	1.146E-02	1.146E-02	1.146E-02	1.146E-02	1.146E-02	1.146E-02
Th-230	8.190E-10	1.151E-02	1.151E-02	1.151E-02	1.151E-02	1.151E-02	1.151E-02	1.151E-02	1.151E-02
Th-231	2.450E-08	1.152E-02	1.152E-02	1.152E-02	1.152E-02	1.152E-02	1.152E-02	1.152E-02	1.152E-02
Th-232	3.420E-10	1.156E-02	1.156E-02	1.156E-02	1.156E-02	1.156E-02	1.156E-02	1.156E-02	1.156E-02
Th-234	1.630E-08	1.153E-02	1.153E-02	1.153E-02	1.153E-02	1.153E-02	1.153E-02	1.153E-02	1.153E-02
Tl-207	1.520E-08	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02	1.128E-02
Tl-208	1.760E-05	1.131E-02	1.131E-02	1.131E-02	1.131E-02	1.131E-02	1.131E-02	1.131E-02	1.131E-02
Tl-210	0.000E+00	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02
U-234	2.520E-10	1.157E-02	1.157E-02	1.157E-02	1.157E-02	1.157E-02	1.157E-02	1.157E-02	1.157E-02
U-235	5.180E-07	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02	1.142E-02

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 U-238    4.990E-11   1.189E-02  1.189E-02  1.189E-02  1.189E-02  1.189E-02  1.189E-02  1.189E-02  1.189E-02
 ÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
 * - Units are 1/yr per (pCi/g) at infinite depth and area.  Multiplication by ETFG(i,t) converts to site
conditions.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page   5
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                        Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                            As pCi/yr at t= 0.000E+00 years

            Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Pa-231    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Pb-210    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Ra-226    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Ra-228    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Th-228    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Th-230    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Th-232    8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 U-234     8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 U-235     8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 U-238     8.533E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
```

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 0.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Adult - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	5.001E-07	0.0631	5.447E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.577E-09	0.0011
Pa-231	4.730E-08	0.0060	1.950E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.969E-09	0.0004
Pb-210	1.448E-09	0.0002	7.862E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.518E-08	0.0057
Ra-226	2.874E-06	0.3624	7.236E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.763E-09	0.0009
Ra-228	1.535E-06	0.1936	1.120E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.883E-08	0.0024
Th-228	2.634E-06	0.3322	3.686E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.550E-09	0.0007
Th-230	2.826E-10	0.0000	8.702E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.563E-09	0.0002

```
 Th-232  1.186E-10 0.0000  1.108E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.747E-09
0.0002
 U-234   8.742E-11 0.0000  7.112E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.254E-09
0.0002
 U-235   1.859E-07 0.0234  6.396E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.282E-09
0.0002
 U-238   3.853E-08 0.0049  6.045E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.584E-09
0.0002
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ
 Total   7.817E-06 0.9858  1.765E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.529E-08
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

```
              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.141E-07
0.0648
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.222E-08
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.742E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.881E-06
0.3633
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.555E-06
0.1961
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.644E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.716E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.974E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.053E-09
```

```
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.878E-07
0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.072E-08
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.930E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page   7
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 0.000E+00 years
0                                                    Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                            and Fraction of Total Risk at t= 0.000E+00 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon             Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  3.221E-07 0.0406  3.509E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.525E-09 0.0007
```

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 Pa-231  2.252E-07 0.0284  3.887E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.019E-09 0.0008
 Pb-210  9.419E-10 0.0001  5.112E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.938E-08 0.0037
 Ra-226  2.856E-06 0.3601  9.926E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.245E-08 0.0028
 Ra-228  1.112E-06 0.1403  1.280E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.539E-09 0.0008
 Th-228  2.424E-07 0.0306  3.392E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.106E-10 0.0001
 Th-230  1.888E-08 0.0024  8.760E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.680E-09 0.0002
 Th-232  2.815E-06 0.3550  4.295E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.907E-08 0.0024
 U-234   8.913E-11 0.0000  7.113E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.254E-09 0.0002
 U-235   1.859E-07 0.0234  6.407E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.284E-09 0.0002
 U-238   3.853E-08 0.0049  6.046E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.584E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   7.817E-06 0.9858  1.765E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.529E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page   8
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 0.000E+00 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.312E-07 0.0418
```

```
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.351E-07 0.0296
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.083E-08 0.0039
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.879E-06 0.3631
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.120E-06 0.1412
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.433E-07 0.0307
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.143E-08 0.0027
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.839E-06 0.3579
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.055E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.879E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.072E-08 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.930E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                                Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                            As pCi/yr at t= 1.000E+00 years

           Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    8.532E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.380E-01
 Pa-231    8.532E-04  0.000E+00  0.000E+00  0.000E+00  4.380E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
```

									0.000E+00	4.380E-01
Pb-210	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.379E-01									
Ra-226	8.533E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									
Ra-228	8.533E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									
Th-228	8.533E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									
Th-230	8.533E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									
Th-232	8.533E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									
U-234	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									
U-235	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									
U-238	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.380E-01									

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
  and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+00 years

0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

(Column group heading: Radionuclides)

Water-ind. == Water-independent   Water-dep. == Water-dependent

1RESRAD, Version 6.5   T« Limit = 180 days   03/30/2011 09:01 Page 10
Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	5.001E-07	0.0631	5.446E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.576E-09
Pa-231	4.730E-08	0.0060	1.950E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.969E-09
Pb-210	1.448E-09	0.0002	7.862E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.518E-08
Ra-226	2.874E-06	0.3624	7.236E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.763E-09
Ra-228	1.535E-06	0.1936	1.120E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.883E-08
Th-228	2.634E-06	0.3322	3.686E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.549E-09
Th-230	2.826E-10	0.0000	8.702E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.563E-09
Th-232	1.186E-10	0.0000	1.108E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.747E-09
U-234	8.742E-11	0.0000	7.112E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.254E-09
U-235	1.859E-07	0.0234	6.396E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.282E-09
U-238	3.853E-08	0.0049	6.045E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.584E-09
Total	7.817E-06	0.9858	1.765E-08	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.529E-08

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.141E-07	0.0648
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.222E-08	0.0066
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.741E-08	0.0060
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.881E-06	0.3633
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.555E-06	0.1961
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.644E-06	0.3334
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.716E-09	0.0003
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.974E-09	0.0004
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.053E-09	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.878E-07	0.0237
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.072E-08	0.0051
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Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.930E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+00 years

0

Radon Pathway	Radionuclides							
	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  3.120E-07 0.0393  3.399E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.352E-09 0.0007
 Pa-231  2.353E-07 0.0297  3.997E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.191E-09 0.0008
 Pb-210  9.129E-10 0.0001  4.955E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.848E-08 0.0036
 Ra-226  2.855E-06 0.3600  1.008E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.334E-08 0.0029
 Ra-228  1.055E-06 0.1331  1.231E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.942E-09 0.0007
 Th-228  1.687E-07 0.0213  2.361E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.554E-10 0.0000
 Th-230  2.011E-08 0.0025  8.764E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.690E-09 0.0002
 Th-232  2.946E-06 0.3715  4.447E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.982E-08 0.0025
 U-234   8.931E-11 0.0000  7.113E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.254E-09 0.0002
 U-235   1.859E-07 0.0234  6.407E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.284E-09 0.0002
 U-238   3.853E-08 0.0049  6.045E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.584E-09 0.0002
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 Total   7.817E-06 0.9858  1.765E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.529E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  12
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+00 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.208E-07 0.0405
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.454E-07 0.0310
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.988E-08 0.0038
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.879E-06 0.3630
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.062E-06 0.1340
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.693E-07 0.0214
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.268E-08 0.0029
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.970E-06 0.3745
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.055E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.879E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.072E-08 0.0051
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Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 7.930E-06 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Adult - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Pa-231	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Pb-210	8.530E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
Ra-226	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Ra-228	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Th-228	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Th-230	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Th-232	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
U-234	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
U-235	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
U-238	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:01 Page 14

Intrisk : TTLF Recreational Adult - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	5.000E-07	0.0631	5.446E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.576E-09	0.0011
Pa-231	4.730E-08	0.0060	1.950E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.968E-09	0.0004
Pb-210	1.448E-09	0.0002	7.860E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.517E-08	0.0057
Ra-226	2.874E-06	0.3624	7.236E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.763E-09	0.0009
Ra-228	1.535E-06	0.1936	1.120E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.882E-08	0.0024
Th-228	2.634E-06	0.3322	3.686E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.549E-09	0.0007
Th-230	2.826E-10	0.0000	8.702E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.563E-09	0.0002

```
 Th-232  1.186E-10 0.0000  1.108E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.747E-09
0.0002
 U-234   8.741E-11 0.0000  7.111E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.254E-09
0.0002
 U-235   1.859E-07 0.0234  6.395E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.282E-09
0.0002
 U-238   3.853E-08 0.0049  6.045E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.584E-09
0.0002
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ÍÍÍÍÍÍ
 Total   7.817E-06 0.9858  1.764E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.528E-08
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+00 years

Water Dependent Pathways

```
              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.141E-07
0.0648
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.221E-08
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.740E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.881E-06
0.3633
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.555E-06
0.1961
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.644E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.716E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.974E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.052E-09
```

```
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.878E-07
0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.072E-08
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.930E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  15
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+00 years
0                                                    Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                  and Fraction of Total Risk at t= 3.000E+00 years
0                                               Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon             Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  2.928E-07 0.0369  3.189E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.021E-09 0.0006
```

```
 Pa-231  2.545E-07 0.0321  4.206E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.521E-09 0.0008
 Pb-210  8.577E-10 0.0001  4.656E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.675E-08 0.0034
 Ra-226  2.852E-06 0.3597  1.037E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.503E-08 0.0032
 Ra-228  9.053E-07 0.1142  1.074E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.829E-09 0.0006
 Th-228  8.175E-08 0.0103  1.144E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.722E-10 0.0000
 Th-230  2.258E-08 0.0028  8.773E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.711E-09 0.0002
 Th-232  3.183E-06 0.4014  4.726E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.112E-08 0.0027
 U-234   8.968E-11 0.0000  7.112E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.254E-09 0.0002
 U-235   1.859E-07 0.0234  6.408E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.284E-09 0.0002
 U-238   3.853E-08 0.0049  6.045E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.584E-09 0.0002
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 Total   7.817E-06 0.9858  1.764E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.528E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  16
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                        and Fraction of Total Risk at t= 3.000E+00 years

                                                  Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.010E-07 0.0380
```

```
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.652E-07 0.0334
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.808E-08 0.0035
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.878E-06 0.3629
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.112E-07 0.1149
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.204E-08 0.0103
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.517E-08 0.0032
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.209E-06 0.4046
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.055E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.879E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.072E-08 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.930E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  17
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                              Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                              As pCi/yr at t= 1.000E+01 years

           Water Independent Pathways (Inhalation w/o radon)                  Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat        Milk        Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    8.530E-04  0.000E+00  0.000E+00  0.000E+00  4.379E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.379E-01
 Pa-231    8.531E-04  0.000E+00  0.000E+00  0.000E+00  4.379E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
```

									0.000E+00	4.379E-01
Pb-210	8.524E-04	0.000E+00	0.000E+00	0.000E+00	4.376E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.376E-01
Ra-226	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Ra-228	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Th-228	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Th-230	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
Th-232	8.532E-04	0.000E+00	0.000E+00	0.000E+00	4.380E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.380E-01
U-234	8.529E-04	0.000E+00	0.000E+00	0.000E+00	4.378E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.378E-01
U-235	8.529E-04	0.000E+00	0.000E+00	0.000E+00	4.378E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.378E-01
U-238	8.529E-04	0.000E+00	0.000E+00	0.000E+00	4.378E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.378E-01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
  and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+01 years

0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
	Radionuclides							
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

1RESRAD, Version 6.5   T« Limit = 180 days   03/30/2011 09:01 Page 18
Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	5.000E-07	0.0630	5.445E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.574E-09
Pa-231	4.729E-08	0.0060	1.949E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.968E-09
Pb-210	1.448E-09	0.0002	7.857E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.515E-08
Ra-226	2.874E-06	0.3624	7.236E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.763E-09
Ra-228	1.535E-06	0.1936	1.120E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.882E-08
Th-228	2.634E-06	0.3322	3.686E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.549E-09
Th-230	2.826E-10	0.0000	8.701E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.563E-09
Th-232	1.186E-10	0.0000	1.108E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.747E-09
U-234	8.739E-11	0.0000	7.109E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.254E-09
U-235	1.858E-07	0.0234	6.393E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.282E-09
U-238	3.852E-08	0.0049	6.043E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.583E-09
Total	7.817E-06	0.9858	1.764E-08	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.526E-08

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.140E-07	0.0648
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.221E-08	0.0066
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.738E-08	0.0060
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.881E-06	0.3633
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.555E-06	0.1961
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.643E-06	0.3334
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.716E-09	0.0003
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.974E-09	0.0004
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.052E-09	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.877E-07	0.0237
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.071E-08	0.0051
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.929E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:01 Page 19
Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+01 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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 Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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 Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

 Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                         and Fraction of Total Risk at t= 1.000E+01 years
0                                      Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  2.343E-07 0.0295  2.551E-09 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.018E-09 0.0005
 Pa-231  3.129E-07 0.0395  4.841E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.522E-09 0.0009
 Pb-210  6.894E-10 0.0001  3.742E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.150E-08 0.0027
 Ra-226  2.844E-06 0.3586  1.124E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.018E-08 0.0038
 Ra-228  4.323E-07 0.0545  5.220E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.167E-09 0.0003
 Th-228  6.471E-09 0.0008  9.055E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.363E-11 0.0000
 Th-230  3.122E-08 0.0039  8.805E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.795E-09 0.0002
 Th-232  3.731E-06 0.4705  5.383E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.394E-08 0.0030
 U-234   9.135E-11 0.0000  7.111E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.254E-09 0.0002
 U-235   1.859E-07 0.0234  6.413E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.285E-09 0.0002
 U-238   3.852E-08 0.0049  6.043E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.583E-09 0.0002
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 Total   7.817E-06 0.9858  1.764E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.526E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  20
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+01 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.408E-07 0.0304
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.252E-07 0.0410
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.257E-08 0.0028
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.875E-06 0.3625
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.350E-07 0.0549
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.494E-09 0.0008
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.389E-08 0.0043
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.760E-06 0.4742
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.056E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.878E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.071E-08 0.0051
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Total   0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 7.929E-06 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

1RESRAD, Version 6.5   T« Limit = 180 days   03/30/2011 09:01 Page 21
Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+01 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	8.526E-04	0.000E+00	0.000E+00	0.000E+00	4.377E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.377E-01
Pa-231	8.527E-04	0.000E+00	0.000E+00	0.000E+00	4.377E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.377E-01
Pb-210	8.513E-04	0.000E+00	0.000E+00	0.000E+00	4.370E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.370E-01
Ra-226	8.531E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
Ra-228	8.530E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
Th-228	8.530E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
Th-230	8.530E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
Th-232	8.530E-04	0.000E+00	0.000E+00	0.000E+00	4.379E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.379E-01
U-234	8.522E-04	0.000E+00	0.000E+00	0.000E+00	4.375E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.375E-01
U-235	8.522E-04	0.000E+00	0.000E+00	0.000E+00	4.375E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.375E-01
U-238	8.522E-04	0.000E+00	0.000E+00	0.000E+00	4.375E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.375E-01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+01 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:01 Page 22

Intrisk : TTLF Recreational Adult - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	4.997E-07	0.0630	5.443E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.570E-09	0.0011
Pa-231	4.727E-08	0.0060	1.948E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.966E-09	0.0004
Pb-210	1.446E-09	0.0002	7.850E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.511E-08	0.0057
Ra-226	2.873E-06	0.3624	7.235E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.762E-09	0.0009
Ra-228	1.535E-06	0.1936	1.119E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.882E-08	0.0024
Th-228	2.634E-06	0.3322	3.685E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.548E-09	0.0007
Th-230	2.825E-10	0.0000	8.699E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.563E-09	0.0002

```
 Th-232  1.186E-10 0.0000  1.108E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.747E-09
0.0002
 U-234   8.732E-11 0.0000  7.103E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.253E-09
0.0002
 U-235   1.857E-07 0.0234  6.388E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.281E-09
0.0002
 U-238   3.849E-08 0.0049  6.038E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.582E-09
0.0002
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ÍÍÍÍÍÍÍ
 Total   7.815E-06 0.9858  1.763E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.520E-08
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

```
              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.137E-07
0.0648
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.218E-08
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.734E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.881E-06
0.3634
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.555E-06
0.1961
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.643E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.715E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.973E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.050E-09
```

```
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.876E-07
0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.067E-08
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.928E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  23
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+01 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222      Po-218      Pb-214      Bi-214      Rn-220      Po-216      Pb-212      Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                and Fraction of Total Risk at t= 3.000E+01 years
0                                             Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.239E-07 0.0156  1.349E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.124E-09 0.0003
```

```
 Pa-231  4.228E-07 0.0533  6.038E-09 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.406E-09 0.0012
 Pb-210  3.694E-10 0.0000  2.005E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.152E-08 0.0015
 Ra-226  2.819E-06 0.3556  1.287E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.981E-08 0.0050
 Ra-228  3.965E-08 0.0050  4.804E-11 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.963E-10 0.0000
 Th-228  4.612E-12 0.0000  6.453E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.714E-15 0.0000
 Th-230  5.573E-08 0.0070  8.906E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.102E-09 0.0003
 Th-232  4.129E-06 0.5208  5.864E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.592E-08 0.0033
 U-234   9.910E-11 0.0000  7.106E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.253E-09 0.0002
 U-235   1.859E-07 0.0235  6.432E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.287E-09 0.0002
 U-238   3.849E-08 0.0049  6.039E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.582E-09 0.0002
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 Total   7.815E-06 0.9858  1.763E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.520E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  24
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                        and Fraction of Total Risk at t= 3.000E+01 years

                                                  Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.273E-07 0.0161
```

```
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.383E-07 0.0553
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.209E-08 0.0015
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.860E-06 0.3608
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.989E-08 0.0050
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.628E-12 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.872E-08 0.0074
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.161E-06 0.5248
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.063E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.879E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.067E-08 0.0051
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.928E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  25
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                       Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                             As pCi/yr at t= 1.000E+02 years

           Water Independent Pathways (Inhalation w/o radon)                      Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    8.512E-04  0.000E+00  0.000E+00  0.000E+00  4.369E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.369E-01
 Pa-231    8.512E-04  0.000E+00  0.000E+00  0.000E+00  4.370E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
```

```
0.000E+00  4.370E-01
 Pb-210    8.498E-04  0.000E+00  0.000E+00  0.000E+00  4.362E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.362E-01
 Ra-226    8.527E-04  0.000E+00  0.000E+00  0.000E+00  4.377E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.377E-01
 Ra-228    8.524E-04  0.000E+00  0.000E+00  0.000E+00  4.375E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.375E-01
 Th-228    8.524E-04  0.000E+00  0.000E+00  0.000E+00  4.375E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.375E-01
 Th-230    8.523E-04  0.000E+00  0.000E+00  0.000E+00  4.375E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.375E-01
 Th-232    8.523E-04  0.000E+00  0.000E+00  0.000E+00  4.375E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.375E-01
 U-234     8.499E-04  0.000E+00  0.000E+00  0.000E+00  4.362E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.362E-01
 U-235     8.499E-04  0.000E+00  0.000E+00  0.000E+00  4.362E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.362E-01
 U-238     8.499E-04  0.000E+00  0.000E+00  0.000E+00  4.362E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.362E-01
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 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
          Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                     Radon and its Decay Products as pCi/yr at t= 1.000E+02 years
0                                                      Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days       03/30/2011  09:01  Page  26
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                           Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                            and Fraction of Total Risk at t= 1.000E+02 years
```

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	4.989E-07	0.0630	5.433E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.556E-09
Pa-231	4.719E-08	0.0060	1.945E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.962E-09
Pb-210	1.444E-09	0.0002	7.839E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.505E-08
Ra-226	2.872E-06	0.3625	7.231E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.758E-09
Ra-228	1.534E-06	0.1936	1.119E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.880E-08
Th-228	2.632E-06	0.3322	3.682E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.543E-09
Th-230	2.823E-10	0.0000	8.692E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.562E-09
Th-232	1.185E-10	0.0000	1.107E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.745E-09
U-234	8.708E-11	0.0000	7.084E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.249E-09
U-235	1.851E-07	0.0234	6.370E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.277E-09
U-238	3.838E-08	0.0048	6.021E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.578E-09
Total	7.809E-06	0.9858	1.761E-08	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.508E-08

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+02 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.129E-07
0.0647
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.209E-08
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.728E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.879E-06
0.3635
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.554E-06
0.1961
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.641E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.713E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.971E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.045E-09
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.870E-07
0.0236
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.056E-08
0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.921E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  27
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 1.000E+02 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.331E-08 0.0017  1.450E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.283E-10 0.0000
 Pa-231  5.317E-07 0.0671  7.219E-09 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.127E-08 0.0014
 Pb-210  4.159E-11 0.0000  2.258E-11 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.297E-09 0.0002
 Ra-226  2.734E-06 0.3451  1.421E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.858E-08 0.0061
 Ra-228  8.578E-12 0.0000  1.039E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.246E-14 0.0000
 Th-228  4.455E-23 0.0000  6.234E-26 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.385E-26 0.0000
 Th-230  1.398E-07 0.0176  9.313E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.491E-09 0.0004
 Th-232  4.165E-06 0.5258  5.908E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.609E-08 0.0033
 U-234   1.605E-10 0.0000  7.091E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.251E-09 0.0002
 U-235   1.861E-07 0.0235  6.515E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.300E-09 0.0002
 U-238   3.838E-08 0.0048  6.024E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.578E-09 0.0002
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 Total   7.809E-06 0.9858  1.761E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.508E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  28
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+02 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.369E-08 0.0017
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.502E-07 0.0695
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.362E-09 0.0002
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.784E-06 0.3514
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.630E-12 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.471E-23 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.442E-07 0.0182
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.197E-06 0.5299
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.121E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.881E-07 0.0237
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.056E-08 0.0051
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Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 7.921E-06 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	8.471E-04	0.000E+00	0.000E+00	0.000E+00	4.348E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.348E-01
Pa-231	8.472E-04	0.000E+00	0.000E+00	0.000E+00	4.349E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.349E-01
Pb-210	8.484E-04	0.000E+00	0.000E+00	0.000E+00	4.355E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.355E-01
Ra-226	8.514E-04	0.000E+00	0.000E+00	0.000E+00	4.370E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.370E-01
Ra-228	8.505E-04	0.000E+00	0.000E+00	0.000E+00	4.366E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.366E-01
Th-228	8.505E-04	0.000E+00	0.000E+00	0.000E+00	4.366E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.366E-01
Th-230	8.504E-04	0.000E+00	0.000E+00	0.000E+00	4.365E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.365E-01
Th-232	8.504E-04	0.000E+00	0.000E+00	0.000E+00	4.366E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.366E-01
U-234	8.431E-04	0.000E+00	0.000E+00	0.000E+00	4.328E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.328E-01
U-235	8.431E-04	0.000E+00	0.000E+00	0.000E+00	4.328E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.328E-01
U-238	8.431E-04	0.000E+00	0.000E+00	0.000E+00	4.328E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.328E-01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways
0
Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+02 years
0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent
1RESRAD, Version 6.5   T« Limit = 180 days   03/30/2011 09:01 Page 30
Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years
0 Water Independent Pathways (Inhalation excludes radon)
0

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	4.965E-07	0.0628	5.408E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.515E-09	0.0011
Pa-231	4.696E-08	0.0059	1.936E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.947E-09	0.0004
Pb-210	1.442E-09	0.0002	7.827E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.498E-08	0.0057
Ra-226	2.868E-06	0.3628	7.220E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.748E-09	0.0009
Ra-228	1.530E-06	0.1936	1.116E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.876E-08	0.0024
Th-228	2.626E-06	0.3322	3.674E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.531E-09	0.0007
Th-230	2.817E-10	0.0000	8.673E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.558E-09	0.0002

```
 Th-232  1.182E-10 0.0000  1.105E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.742E-09
0.0002
 U-234   8.638E-11 0.0000  7.027E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.239E-09
0.0002
 U-235   1.837E-07 0.0232  6.320E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.267E-09
0.0002
 U-238   3.807E-08 0.0048  5.973E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.565E-09
0.0002
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ÍÍÍÍÍÍ
 Total   7.791E-06 0.9858  1.754E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.486E-08
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.104E-07
0.0646
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.185E-08
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.720E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.875E-06
0.3638
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.550E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.635E-06
0.3334
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.707E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.964E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.028E-09
```

```
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.856E-07
0.0235
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.024E-08
0.0051
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.903E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  31
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+02 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 3.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0              Ground          Inhalation          Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  2.274E-11 0.0000  2.477E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.900E-13 0.0000
```

```
 Pa-231  5.402E-07 0.0683  7.298E-09 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.139E-08 0.0014
 Pb-210  8.111E-14 0.0000  4.403E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.530E-12 0.0000
 Ra-226  2.503E-06 0.3167  1.322E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.568E-08 0.0058
 Ra-228  2.899E-22 0.0000  3.512E-25 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.435E-24 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  3.655E-07 0.0462  1.047E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.588E-09 0.0010
 Th-232  4.156E-06 0.5259  5.895E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.604E-08 0.0033
 U-234   6.154E-10 0.0001  7.048E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.250E-09 0.0002
 U-235   1.869E-07 0.0237  6.771E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.337E-09 0.0002
 U-238   3.807E-08 0.0048  5.979E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.566E-09 0.0002
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 Total   7.791E-06 0.9858  1.754E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.486E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  32
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 3.000E+02 years

                                                   Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.338E-11 0.0000
```

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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.589E-07 0.0707
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.655E-12 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.550E-06 0.3227
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.917E-22 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.741E-07 0.0473
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.188E-06 0.5299
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.571E-09 0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.889E-07 0.0239
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.024E-08 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.903E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                                Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                              As pCi/yr at t= 1.000E+03 years

            Water Independent Pathways (Inhalation w/o radon)                     Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat        Milk        Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    8.330E-04  0.000E+00  0.000E+00  0.000E+00  4.276E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  4.276E-01
 Pa-231    8.331E-04  0.000E+00  0.000E+00  0.000E+00  4.277E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
```

										0.000E+00	4.277E-01
Pb-210	8.437E-04	0.000E+00	0.000E+00	0.000E+00	4.331E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.331E-01
Ra-226	8.466E-04	0.000E+00	0.000E+00	0.000E+00	4.346E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.346E-01
Ra-228	8.439E-04	0.000E+00	0.000E+00	0.000E+00	4.332E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.332E-01
Th-228	8.439E-04	0.000E+00	0.000E+00	0.000E+00	4.332E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.332E-01
Th-230	8.438E-04	0.000E+00	0.000E+00	0.000E+00	4.331E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.331E-01
Th-232	8.439E-04	0.000E+00	0.000E+00	0.000E+00	4.332E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.332E-01
U-234	8.198E-04	0.000E+00	0.000E+00	0.000E+00	4.208E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.208E-01
U-235	8.198E-04	0.000E+00	0.000E+00	0.000E+00	4.208E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.208E-01
U-238	8.198E-04	0.000E+00	0.000E+00	0.000E+00	4.208E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.208E-01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+03 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

1RESRAD, Version 6.5   T« Limit = 180 days   03/30/2011 09:01 Page 34
Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	4.882E-07	0.0623	5.318E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.374E-09	0.0011
Pa-231	4.618E-08	0.0059	1.904E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.898E-09	0.0004
Pb-210	1.434E-09	0.0002	7.783E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.473E-08	0.0057
Ra-226	2.851E-06	0.3638	7.180E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.710E-09	0.0009
Ra-228	1.519E-06	0.1937	1.107E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.862E-08	0.0024
Th-228	2.605E-06	0.3324	3.646E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.489E-09	0.0007
Th-230	2.795E-10	0.0000	8.605E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.546E-09	0.0002
Th-232	1.173E-10	0.0000	1.096E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.728E-09	0.0002
U-234	8.399E-11	0.0000	6.833E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.205E-09	0.0002
U-235	1.786E-07	0.0228	6.145E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.232E-09	0.0002
U-238	3.702E-08	0.0047	5.808E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.522E-09	0.0002
Total	7.727E-06	0.9858	1.731E-08	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.405E-08	0.0120

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.019E-07	0.0640
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.098E-08	0.0065
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.694E-08	0.0060
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.859E-06	0.3647
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.538E-06	0.1962
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.614E-06	0.3335
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.686E-09	0.0003
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.941E-09	0.0004
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.972E-09	0.0003
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.804E-07	0.0230
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.912E-08	0.0050
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.839E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:01 Page 35
Intrisk : TTLF Recreational Adult - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+03 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  4.684E-21 0.0000  5.102E-23 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.034E-23 0.0000
 Pa-231  5.235E-07 0.0668  7.073E-09 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.104E-08 0.0014
 Pb-210  2.657E-23 0.0000  1.442E-23 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.286E-22 0.0000
 Ra-226  1.839E-06 0.2347  9.718E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.357E-08 0.0043
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  1.009E-06 0.1287  1.375E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.932E-08 0.0025
 Th-232  4.124E-06 0.5261  5.849E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.584E-08 0.0033
 U-234   4.982E-09 0.0006  6.915E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.299E-09 0.0002
 U-235   1.895E-07 0.0242  7.633E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.464E-09 0.0002
 U-238   3.703E-08 0.0047  5.828E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.525E-09 0.0002
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 Total   7.727E-06 0.9858  1.731E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.405E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:01  Page  36
 Intrisk : TTLF Recreational Adult - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFRECADULT.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+03 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.816E-21 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.416E-07 0.0691
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.696E-22 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.874E-06 0.2391
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.030E-06 0.1313
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.156E-06 0.5302
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.972E-09 0.0009
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.918E-07 0.0245
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.914E-08 0.0050
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.839E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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Appendix G-5
RESRAD Dose Output for Construction Worker

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1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:39 Page 1
Summary : TTLF Construction Worker - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

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Total Dose Components
Time = 0.000E+00 13
Time = 1.000E+00 14
Time = 3.000E+00 15
Time = 1.000E+01 16
Time = 3.000E+01 17
Time = 1.000E+02 18
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1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:39 Page 2
Summary : TTLF Construction Worker - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(2)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(3)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(4)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(5)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(6)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(7)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(8)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(9)
A-1	Pa-234 (Source: FGR 12)	1.155E+01	1.155E+01	DCF1(10)
A-1	Pa-234m (Source: FGR 12)	8.967E-02	8.967E-02	DCF1(11)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(12)

A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(13)
A-1	Pb-212 (Source: FGR 12)	7.043E-01	7.043E-01	DCF1(14)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(15)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(16)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(17)
A-1	Po-212 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(18)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(19)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(20)
A-1	Po-216 (Source: FGR 12)	1.042E-04	1.042E-04	DCF1(21)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(22)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(23)
A-1	Ra-224 (Source: FGR 12)	5.119E-02	5.119E-02	DCF1(24)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(25)
A-1	Ra-228 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(26)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(27)
A-1	Rn-220 (Source: FGR 12)	2.298E-03	2.298E-03	DCF1(28)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(29)
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(30)
A-1	Th-228 (Source: FGR 12)	7.940E-03	7.940E-03	DCF1(31)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(32)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(33)
A-1	Th-232 (Source: FGR 12)	5.212E-04	5.212E-04	DCF1(34)
A-1	Th-234 (Source: FGR 12)	2.410E-02	2.410E-02	DCF1(35)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(36)
A-1	Tl-208 (Source: FGR 12)	2.298E+01	2.298E+01	DCF1(37)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(38)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(39)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(40)
A-1	U-238 (Source: FGR 12)	1.031E-04	1.031E-04	DCF1(41)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.724E+00	6.700E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	2.320E-02	1.360E-02	DCF2(3)
B-1	Ra-226+D	8.594E-03	8.580E-03	DCF2(4)
B-1	Ra-228+D	5.078E-03	4.770E-03	DCF2(5)
B-1	Th-228+D	3.454E-01	3.420E-01	DCF2(6)

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Summary : TTLF Construction Worker - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Dose Conversion Factor (and Related) Parameter Summary (continued)

Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-230	3.260E-01	3.260E-01	DCF2(7)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(8)

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B-1  ³ U-234                                                    ³ 1.320E-01 ³ 1.320E-01 ³ DCF2(  9)
B-1  ³ U-235+D                                                  ³ 1.230E-01 ³ 1.230E-01 ³ DCF2( 10)
B-1  ³ U-238                                                    ³ 1.180E-01 ³ 1.180E-01 ³ DCF2( 11)
B-1  ³ U-238+D                                                  ³ 1.180E-01 ³ 1.180E-01 ³ DCF2( 12)
     ³                                                          ³           ³           ³
D-1  ³ Dose conversion factors for ingestion, mrem/pCi:         ³           ³           ³
D-1  ³ Ac-227+D                                                 ³ 1.480E-02 ³ 1.410E-02 ³ DCF3(  1)
D-1  ³ Pa-231                                                   ³ 1.060E-02 ³ 1.060E-02 ³ DCF3(  2)
D-1  ³ Pb-210+D                                                 ³ 7.276E-03 ³ 5.370E-03 ³ DCF3(  3)
D-1  ³ Ra-226+D                                                 ³ 1.321E-03 ³ 1.320E-03 ³ DCF3(  4)
D-1  ³ Ra-228+D                                                 ³ 1.442E-03 ³ 1.440E-03 ³ DCF3(  5)
D-1  ³ Th-228+D                                                 ³ 8.086E-04 ³ 3.960E-04 ³ DCF3(  6)
D-1  ³ Th-230                                                   ³ 5.480E-04 ³ 5.480E-04 ³ DCF3(  7)
D-1  ³ Th-232                                                   ³ 2.730E-03 ³ 2.730E-03 ³ DCF3(  8)
D-1  ³ U-234                                                    ³ 2.830E-04 ³ 2.830E-04 ³ DCF3(  9)
D-1  ³ U-235+D                                                  ³ 2.673E-04 ³ 2.660E-04 ³ DCF3( 10)
D-1  ³ U-238                                                    ³ 2.550E-04 ³ 2.550E-04 ³ DCF3( 11)
D-1  ³ U-238+D                                                  ³ 2.687E-04 ³ 2.550E-04 ³ DCF3( 12)
     ³                                                          ³           ³           ³
D-34 ³ Food transfer factors:                                   ³           ³           ³
D-34 ³ Ac-227+D  , plant/soil concentration ratio, dimensionless ³ 2.500E-03 ³ 2.500E-03 ³ RTF(  1,1)
D-34 ³ Ac-227+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 2.000E-05 ³ 2.000E-05 ³ RTF(  1,2)
D-34 ³ Ac-227+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 2.000E-05 ³ 2.000E-05 ³ RTF(  1,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Pa-231    , plant/soil concentration ratio, dimensionless ³ 1.000E-02 ³ 1.000E-02 ³ RTF(  2,1)
D-34 ³ Pa-231    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 5.000E-03 ³ 5.000E-03 ³ RTF(  2,2)
D-34 ³ Pa-231    , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  2,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Pb-210+D  , plant/soil concentration ratio, dimensionless ³ 1.000E-02 ³ 1.000E-02 ³ RTF(  3,1)
D-34 ³ Pb-210+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 8.000E-04 ³ 8.000E-04 ³ RTF(  3,2)
D-34 ³ Pb-210+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 3.000E-04 ³ 3.000E-04 ³ RTF(  3,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Ra-226+D  , plant/soil concentration ratio, dimensionless ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  4,1)
D-34 ³ Ra-226+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,2)
D-34 ³ Ra-226+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Ra-228+D  , plant/soil concentration ratio, dimensionless ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  5,1)
D-34 ³ Ra-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,2)
D-34 ³ Ra-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Th-228+D  , plant/soil concentration ratio, dimensionless ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  6,1)
D-34 ³ Th-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  6,2)
D-34 ³ Th-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  6,3)
D-34 ³                                                          ³           ³           ³
D-34 ³ Th-230    , plant/soil concentration ratio, dimensionless ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  7,1)
D-34 ³ Th-230    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d) ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  7,2)
D-34 ³ Th-230    , milk/livestock-intake ratio, (pCi/L)/(pCi/d) ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  7,3)
D-34 ³                                                          ³           ³           ³
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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	Th-232 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(8,1)
D-34	Th-232 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(8,2)
D-34	Th-232 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(8,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(9,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(9,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(9,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(10,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(10,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(10,3)
D-34				
D-34	U-238 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(11,1)
D-34	U-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(11,2)
D-34	U-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(11,3)
D-34				
D-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(12,1)
D-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(12,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(12,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5				
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
D-5				
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)
D-5				
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(4,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(4,2)
D-5				
D-5	Ra-228+D , fish	5.000E+01	5.000E+01	BIOFAC(5,1)
D-5	Ra-228+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(5,2)
D-5				
D-5	Th-228+D , fish	1.000E+02	1.000E+02	BIOFAC(6,1)
D-5	Th-228+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(6,2)
D-5				

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 D-5  ³ Th-230    , fish                                         ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  7,1)
 D-5  ³ Th-230    , crustacea and mollusks                       ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  7,2)
 D-5  ³                                                          ³           ³           ³
 D-5  ³ Th-232    , fish                                         ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  8,1)
 D-5  ³ Th-232    , crustacea and mollusks                       ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  8,2)
 D-5  ³                                                          ³           ³           ³
 D-5  ³ U-234     , fish                                         ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC(  9,1)
 D-5  ³ U-234     , crustacea and mollusks                       ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC(  9,2)
 D-5  ³                                                          ³           ³           ³
 D-5  ³ U-235+D   , fish                                         ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 10,1)
 D-5  ³ U-235+D   , crustacea and mollusks                       ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 10,2)
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                    Dose Conversion Factor (and Related) Parameter Summary (continued)
                                  Dose Library: FGR 12 & FGR 11
0     ³                                                          ³  Current  ³   Base    ³  Parameter
 Menu ³                        Parameter                         ³   Value#  ³   Case*   ³    Name
 ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 D-5  ³ U-238     , fish                                         ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 11,1)
 D-5  ³ U-238     , crustacea and mollusks                       ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 11,2)
 D-5  ³                                                          ³           ³           ³
 D-5  ³ U-238+D   , fish                                         ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 12,1)
 D-5  ³ U-238+D   , crustacea and mollusks                       ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 12,2)
 ÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÏÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
 #For DCF1(xxx) only, factors are for infinite depth & area.  See ETFG table in Ground Pathway of Detailed
Report.
 *Base Case means Default.Lib w/o Associate Nuclide contributions.
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 Summary : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                                                             Site-Specific Parameter Summary
0     ³                                                   ³   User    ³           ³         Used by RESRAD
    ³  Parameter
 Menu ³                   Parameter                       ³   Input   ³  Default  ³ (If different from user
input) ³    Name

ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R011 ³ Area of contaminated zone (m**2)                  ³ 1.000E+04 ³ 1.000E+04 ³              ---
    ³ AREA
 R011 ³ Thickness of contaminated zone (m)                ³ 2.000E+00 ³ 2.000E+00 ³              ---
    ³ THICK0
 R011 ³ Fraction of contamination that is submerged       ³ 8.500E-01 ³ 0.000E+00 ³              ---
    ³ SUBMFRACT
 R011 ³ Length parallel to aquifer flow (m)               ³ not used  ³ 1.000E+02 ³              ---
```

```
    ³ LCZPAQ
R011 ³ Basic radiation dose limit (mrem/yr)             ³ 2.500E+01 ³ 3.000E+01 ³              ---
    ³ BRDL
R011 ³ Time since placement of material (yr)            ³ 0.000E+00 ³ 0.000E+00 ³              ---
    ³ TI
R011 ³ Times for calculations (yr)                      ³ 1.000E+00 ³ 1.000E+00 ³              ---
    ³ T( 2)
R011 ³ Times for calculations (yr)                      ³ 3.000E+00 ³ 3.000E+00 ³              ---
    ³ T( 3)
R011 ³ Times for calculations (yr)                      ³ 1.000E+01 ³ 1.000E+01 ³              ---
    ³ T( 4)
R011 ³ Times for calculations (yr)                      ³ 3.000E+01 ³ 3.000E+01 ³              ---
    ³ T( 5)
R011 ³ Times for calculations (yr)                      ³ 1.000E+02 ³ 1.000E+02 ³              ---
    ³ T( 6)
R011 ³ Times for calculations (yr)                      ³ 3.000E+02 ³ 3.000E+02 ³              ---
    ³ T( 7)
R011 ³ Times for calculations (yr)                      ³ 1.000E+03 ³ 1.000E+03 ³              ---
    ³ T( 8)
R011 ³ Times for calculations (yr)                      ³ not used  ³ 0.000E+00 ³              ---
    ³ T( 9)
R011 ³ Times for calculations (yr)                      ³ not used  ³ 0.000E+00 ³              ---
    ³ T(10)
     ³                                                  ³           ³           ³
    ³
R012 ³ Initial principal radionuclide (pCi/g):  Ac-227  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(1)
R012 ³ Initial principal radionuclide (pCi/g):  Pa-231  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(2)
R012 ³ Initial principal radionuclide (pCi/g):  Pb-210  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(3)
R012 ³ Initial principal radionuclide (pCi/g):  Ra-226  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(4)
R012 ³ Initial principal radionuclide (pCi/g):  Ra-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(5)
R012 ³ Initial principal radionuclide (pCi/g):  Th-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(6)
R012 ³ Initial principal radionuclide (pCi/g):  Th-230  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(7)
R012 ³ Initial principal radionuclide (pCi/g):  Th-232  ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(8)
R012 ³ Initial principal radionuclide (pCi/g):  U-234   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(9)
R012 ³ Initial principal radionuclide (pCi/g):  U-235   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(10)
R012 ³ Initial principal radionuclide (pCi/g):  U-238   ³ 1.000E+00 ³ 0.000E+00 ³              ---
    ³ S1(11)
R012 ³ Concentration in groundwater   (pCi/L):  Ac-227  ³ 5.350E+00 ³ 0.000E+00 ³          0.000E+00
```

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     ³ W1( 1)
R012 ³ Concentration in groundwater   (pCi/L):  Pa-231  ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 2)
R012 ³ Concentration in groundwater   (pCi/L):  Pb-210  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 3)
R012 ³ Concentration in groundwater   (pCi/L):  Ra-226  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 4)
R012 ³ Concentration in groundwater   (pCi/L):  Ra-228  ³ 5.460E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 5)
R012 ³ Concentration in groundwater   (pCi/L):  Th-228  ³ 2.330E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 6)
R012 ³ Concentration in groundwater   (pCi/L):  Th-230  ³ 5.580E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 7)
R012 ³ Concentration in groundwater   (pCi/L):  Th-232  ³ 1.730E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 8)
R012 ³ Concentration in groundwater   (pCi/L):  U-234   ³ 7.360E+01 ³ 0.000E+00 ³           0.000E+00
     ³ W1( 9)
R012 ³ Concentration in groundwater   (pCi/L):  U-235   ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
     ³ W1(10)
R012 ³ Concentration in groundwater   (pCi/L):  U-238   ³ 7.280E+01 ³ 0.000E+00 ³           0.000E+00
     ³ W1(11)
      ³                                                ³           ³           ³
     ³
R013 ³ Cover depth (m)                                 ³ 0.000E+00 ³ 0.000E+00 ³              ---
     ³ COVER0
R013 ³ Density of cover material (g/cm**3)             ³ not used  ³ 1.500E+00 ³              ---
     ³ DENSCV
R013 ³ Cover depth erosion rate (m/yr)                 ³ not used  ³ 1.000E-03 ³              ---
     ³ VCV
R013 ³ Density of contaminated zone (g/cm**3)          ³ 1.450E+00 ³ 1.500E+00 ³              ---
     ³ DENSCZ
R013 ³ Contaminated zone erosion rate (m/yr)           ³ 1.000E-03 ³ 1.000E-03 ³              ---
     ³ VCZ
R013 ³ Contaminated zone total porosity                ³ 4.500E-01 ³ 4.000E-01 ³              ---
     ³ TPCZ
R013 ³ Contaminated zone field capacity                ³ 2.000E-01 ³ 2.000E-01 ³              ---
     ³ FCCZ
R013 ³ Contaminated zone hydraulic conductivity (m/yr) ³ 2.270E+03 ³ 1.000E+01 ³              ---
     ³ HCCZ
R013 ³ Contaminated zone b parameter                   ³ 4.000E+00 ³ 5.300E+00 ³              ---
     ³ BCZ
R013 ³ Average annual wind speed (m/sec)               ³ 2.000E+00 ³ 2.000E+00 ³              ---
     ³ WIND
R013 ³ Humidity in air (g/m**3)                        ³ not used  ³ 8.000E+00 ³              ---
     ³ HUMID
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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)
R013	Evapotranspiration coefficient EVAPTR	7.800E-01	5.000E-01	---
R013	Precipitation (m/yr) PRECIP	9.800E-01	1.000E+00	---
R013	Irrigation (m/yr) RI	2.000E-01	2.000E-01	---
R013	Irrigation mode IDITCH	overhead	overhead	---
R013	Runoff coefficient RUNOFF	5.000E-01	2.000E-01	---
R013	Watershed area for nearby stream or pond (m**2) WAREA	not used	1.000E+06	---
R013	Accuracy for water/soil computations EPS	not used	1.000E-03	---
R014	Density of saturated zone (g/cm**3) DENSAQ	not used	1.500E+00	---
R014	Saturated zone total porosity TPSZ	not used	4.000E-01	---
R014	Saturated zone effective porosity EPSZ	not used	2.000E-01	---
R014	Saturated zone field capacity FCSZ	not used	2.000E-01	---
R014	Saturated zone hydraulic conductivity (m/yr) HCSZ	not used	1.000E+02	---
R014	Saturated zone hydraulic gradient HGWT	not used	2.000E-02	---
R014	Saturated zone b parameter BSZ	not used	5.300E+00	---
R014	Water table drop rate (m/yr) VWT	not used	1.000E-03	---
R014	Well pump intake depth (m below water table) DWIBWT	not used	1.000E+01	---
R014	Model: Nondispersion (ND) or Mass-Balance (MB) MODEL	not used	ND	---
R014	Well pumping rate (m**3/yr) UW	not used	2.500E+02	---

```
     ³
R015 ³ Number of unsaturated zone strata                ³ not used  ³ 1         ³              ---
     ³ NS
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Ac-227             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 2.400E+03 ³ 2.000E+01 ³              ---
     ³ DCNUCC( 1)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 2.000E+01 ³              ---
     ³ DCNUCS( 1)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           2.669E-05
     ³ ALEACH( 1)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 1)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Pa-231             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 2.700E+03 ³ 5.000E+01 ³              ---
     ³ DCNUCC( 2)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
     ³ DCNUCS( 2)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           2.373E-05
     ³ ALEACH( 2)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 2)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Pb-210             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 5.500E+02 ³ 1.000E+02 ³              ---
     ³ DCNUCC( 3)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 1.000E+02 ³              ---
     ³ DCNUCS( 3)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           1.164E-04
     ³ ALEACH( 3)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 3)
      ³                                                 ³           ³           ³
     ³
R016 ³ Distribution coefficients for Ra-226             ³           ³           ³
     ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 9.100E+03 ³ 7.000E+01 ³              ---
     ³ DCNUCC( 4)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 7.000E+01 ³              ---
     ³ DCNUCS( 4)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           7.040E-06
```

```
     ³ ALEACH( 4)
 R016 ³   Solubility constant                                ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 4)
      ³                                                      ³           ³           ³
     ³
 R016 ³ Distribution coefficients for Ra-228                 ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                        ³ 9.100E+03 ³ 7.000E+01 ³              ---
     ³ DCNUCC( 5)
 R016 ³   Saturated zone (cm**3/g)                           ³ not used  ³ 7.000E+01 ³              ---
     ³ DCNUCS( 5)
 R016 ³   Leach rate (/yr)                                   ³ 0.000E+00 ³ 0.000E+00 ³           7.040E-06
     ³ ALEACH( 5)
 R016 ³   Solubility constant                                ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 5)
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     ³  Parameter
 Menu ³                   Parameter                          ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R016 ³ Distribution coefficients for Th-228                 ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                        ³ 5.800E+03 ³ 6.000E+04 ³              ---
     ³ DCNUCC( 6)
 R016 ³   Saturated zone (cm**3/g)                           ³ not used  ³ 6.000E+04 ³              ---
     ³ DCNUCS( 6)
 R016 ³   Leach rate (/yr)                                   ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
     ³ ALEACH( 6)
 R016 ³   Solubility constant                                ³ 0.000E+00 ³ 0.000E+00 ³           not used
     ³ SOLUBK( 6)
      ³                                                      ³           ³           ³
     ³
 R016 ³ Distribution coefficients for Th-230                 ³           ³           ³
     ³
 R016 ³   Contaminated zone (cm**3/g)                        ³ 5.800E+03 ³ 6.000E+04 ³              ---
     ³ DCNUCC( 7)
 R016 ³   Saturated zone (cm**3/g)                           ³ not used  ³ 6.000E+04 ³              ---
     ³ DCNUCS( 7)
 R016 ³   Leach rate (/yr)                                   ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
     ³ ALEACH( 7)
 R016 ³   Solubility constant                                ³ 0.000E+00 ³ 0.000E+00 ³           not used
```

```
    ³ SOLUBK( 7)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for Th-232             ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 5.800E+03 ³ 6.000E+04 ³              ---
    ³ DCNUCC( 8)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 6.000E+04 ³              ---
    ³ DCNUCS( 8)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
    ³ ALEACH( 8)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK( 8)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-234              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC( 9)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS( 9)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH( 9)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK( 9)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-235              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC(10)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS(10)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH(10)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
    ³ SOLUBK(10)
     ³                                                  ³           ³           ³
    ³
R016 ³ Distribution coefficients for U-238              ³           ³           ³
    ³
R016 ³   Contaminated zone (cm**3/g)                    ³ 1.600E+03 ³ 5.000E+01 ³              ---
    ³ DCNUCC(11)
R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 5.000E+01 ³              ---
    ³ DCNUCS(11)
R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
    ³ ALEACH(11)
R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³           not used
```

```
     ³ SOLUBK(11)
      ³                                               ³           ³           ³
     ³
 R017 ³ Inhalation rate (m**3/yr)                     ³ 1.400E+04 ³ 8.400E+03 ³            ---
     ³ INHALR
 R017 ³ Mass loading for inhalation (g/m**3)          ³ 1.800E-04 ³ 1.000E-04 ³            ---
     ³ MLINH
 R017 ³ Exposure duration                             ³ 1.000E+00 ³ 3.000E+01 ³            ---
     ³ ED
 R017 ³ Shielding factor, inhalation                  ³ 4.000E-01 ³ 4.000E-01 ³            ---
     ³ SHF3
 R017 ³ Shielding factor, external gamma              ³ 4.000E-01 ³ 7.000E-01 ³            ---
     ³ SHF1
 R017 ³ Fraction of time spent indoors                ³ 0.000E+00 ³ 5.000E-01 ³            ---
     ³ FIND
 R017 ³ Fraction of time spent outdoors (on site)     ³ 2.280E-01 ³ 2.500E-01 ³            ---
     ³ FOTD
 R017 ³ Shape factor flag, external gamma             ³ 1.000E+00 ³ 1.000E+00 ³    >0 shows circular
AREA.     ³ FS
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0     ³                                               ³   User    ³           ³         Used by RESRAD
     ³  Parameter
 Menu ³                    Parameter                  ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R017 ³ Radii of shape factor array (used if FS = -1):   ³           ³           ³
     ³
 R017 ³   Outer annular radius (m), ring  1:          ³ not used  ³ 5.000E+01 ³            ---
     ³ RAD_SHAPE( 1)
 R017 ³   Outer annular radius (m), ring  2:          ³ not used  ³ 7.071E+01 ³            ---
     ³ RAD_SHAPE( 2)
 R017 ³   Outer annular radius (m), ring  3:          ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 3)
 R017 ³   Outer annular radius (m), ring  4:          ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 4)
 R017 ³   Outer annular radius (m), ring  5:          ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 5)
 R017 ³   Outer annular radius (m), ring  6:          ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 6)
 R017 ³   Outer annular radius (m), ring  7:          ³ not used  ³ 0.000E+00 ³            ---
     ³ RAD_SHAPE( 7)
 R017 ³   Outer annular radius (m), ring  8:          ³ not used  ³ 0.000E+00 ³            ---
```

```
    ³ RAD_SHAPE( 8)
R017 ³   Outer annular radius (m), ring  9:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE( 9)
R017 ³   Outer annular radius (m), ring 10:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(10)
R017 ³   Outer annular radius (m), ring 11:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(11)
R017 ³   Outer annular radius (m), ring 12:             ³ not used  ³ 0.000E+00 ³              ---
    ³ RAD_SHAPE(12)
     ³                                                  ³           ³           ³
    ³
R017 ³ Fractions of annular areas within AREA:          ³           ³           ³
    ³
R017 ³   Ring  1                                        ³ not used  ³ 1.000E+00 ³              ---
    ³ FRACA( 1)
R017 ³   Ring  2                                        ³ not used  ³ 2.732E-01 ³              ---
    ³ FRACA( 2)
R017 ³   Ring  3                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 3)
R017 ³   Ring  4                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 4)
R017 ³   Ring  5                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 5)
R017 ³   Ring  6                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 6)
R017 ³   Ring  7                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 7)
R017 ³   Ring  8                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 8)
R017 ³   Ring  9                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA( 9)
R017 ³   Ring 10                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(10)
R017 ³   Ring 11                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(11)
R017 ³   Ring 12                                        ³ not used  ³ 0.000E+00 ³              ---
    ³ FRACA(12)
     ³                                                  ³           ³           ³
    ³
R018 ³ Fruits, vegetables and grain consumption (kg/yr) ³ not used  ³ 1.600E+02 ³              ---
    ³ DIET(1)
R018 ³ Leafy vegetable consumption (kg/yr)              ³ not used  ³ 1.400E+01 ³              ---
    ³ DIET(2)
R018 ³ Milk consumption (L/yr)                          ³ not used  ³ 9.200E+01 ³              ---
    ³ DIET(3)
R018 ³ Meat and poultry consumption (kg/yr)             ³ not used  ³ 6.300E+01 ³              ---
    ³ DIET(4)
R018 ³ Fish consumption (kg/yr)                         ³ not used  ³ 5.400E+00 ³              ---
```

```
     ³ DIET(5)
 R018 ³ Other seafood consumption (kg/yr)               ³ not used  ³ 9.000E-01 ³              ---
     ³ DIET(6)
 R018 ³ Soil ingestion rate (g/yr)                      ³ 1.752E+02 ³ 3.650E+01 ³              ---
     ³ SOIL
 R018 ³ Drinking water intake (L/yr)                    ³ not used  ³ 5.100E+02 ³              ---
     ³ DWI
 R018 ³ Contamination fraction of drinking water        ³ not used  ³ 1.000E+00 ³              ---
     ³ FDW
 R018 ³ Contamination fraction of household water       ³ not used  ³ 1.000E+00 ³              ---
     ³ FHHW
 R018 ³ Contamination fraction of livestock water       ³ not used  ³ 1.000E+00 ³              ---
     ³ FLW
 R018 ³ Contamination fraction of irrigation water      ³ not used  ³ 1.000E+00 ³              ---
     ³ FIRW
 R018 ³ Contamination fraction of aquatic food          ³ not used  ³ 5.000E-01 ³              ---
     ³ FR9
 R018 ³ Contamination fraction of plant food            ³ not used  ³-1         ³              ---
     ³ FPLANT
 R018 ³ Contamination fraction of meat                  ³ not used  ³-1         ³              ---
     ³ FMEAT
 R018 ³ Contamination fraction of milk                  ³ not used  ³-1         ³              ---
     ³ FMILK
      ³                                                 ³           ³           ³
     ³
 R019 ³ Livestock fodder intake for meat (kg/day)       ³ not used  ³ 6.800E+01 ³              ---
     ³ LFI5
 R019 ³ Livestock fodder intake for milk (kg/day)       ³ not used  ³ 5.500E+01 ³              ---
     ³ LFI6
 R019 ³ Livestock water intake for meat (L/day)         ³ not used  ³ 5.000E+01 ³              ---
     ³ LWI5
 R019 ³ Livestock water intake for milk (L/day)         ³ not used  ³ 1.600E+02 ³              ---
     ³ LWI6
 R019 ³ Livestock soil intake (kg/day)                  ³ not used  ³ 5.000E-01 ³              ---
     ³ LSI
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0     ³                                                 ³   User    ³           ³        Used by RESRAD
     ³  Parameter
 Menu ³                   Parameter                     ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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 R019 ³ Mass loading for foliar deposition (g/m**3)     ³ not used  ³ 1.000E-04 ³              ---
```

```
    ³ MLFD
R019 ³ Depth of soil mixing layer (m)                    ³ 1.500E-01 ³ 1.500E-01 ³              ---
    ³ DM
R019 ³ Depth of roots (m)                                ³ not used  ³ 9.000E-01 ³              ---
    ³ DROOT
R019 ³ Drinking water fraction from ground water         ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWDW
R019 ³ Household water fraction from ground water        ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWHH
R019 ³ Livestock water fraction from ground water        ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWLW
R019 ³ Irrigation fraction from ground water             ³ not used  ³ 1.000E+00 ³              ---
    ³ FGWIR
     ³                                                   ³           ³           ³
    ³
R19B ³ Wet weight crop yield for Non-Leafy (kg/m**2)     ³ not used  ³ 7.000E-01 ³              ---
    ³ YV(1)
R19B ³ Wet weight crop yield for Leafy     (kg/m**2)     ³ not used  ³ 1.500E+00 ³              ---
    ³ YV(2)
R19B ³ Wet weight crop yield for Fodder    (kg/m**2)     ³ not used  ³ 1.100E+00 ³              ---
    ³ YV(3)
R19B ³ Growing Season for  Non-Leafy (years)             ³ not used  ³ 1.700E-01 ³              ---
    ³ TE(1)
R19B ³ Growing Season for  Leafy     (years)             ³ not used  ³ 2.500E-01 ³              ---
    ³ TE(2)
R19B ³ Growing Season for  Fodder    (years)             ³ not used  ³ 8.000E-02 ³              ---
    ³ TE(3)
R19B ³ Translocation Factor for  Non-Leafy               ³ not used  ³ 1.000E-01 ³              ---
    ³ TIV(1)
R19B ³ Translocation Factor for  Leafy                   ³ not used  ³ 1.000E+00 ³              ---
    ³ TIV(2)
R19B ³ Translocation Factor for  Fodder                  ³ not used  ³ 1.000E+00 ³              ---
    ³ TIV(3)
R19B ³ Dry Foliar Interception Fraction for  Non-Leafy   ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(1)
R19B ³ Dry Foliar Interception Fraction for  Leafy       ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(2)
R19B ³ Dry Foliar Interception Fraction for  Fodder      ³ not used  ³ 2.500E-01 ³              ---
    ³ RDRY(3)
R19B ³ Wet Foliar Interception Fraction for  Non-Leafy   ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(1)
R19B ³ Wet Foliar Interception Fraction for  Leafy       ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(2)
R19B ³ Wet Foliar Interception Fraction for  Fodder      ³ not used  ³ 2.500E-01 ³              ---
    ³ RWET(3)
R19B ³ Weathering Removal Constant for Vegetation        ³ not used  ³ 2.000E+01 ³              ---
    ³ WLAM
     ³                                                   ³           ³           ³
```

```
     ³
C14  ³ C-12 concentration in water (g/cm**3)            ³ not used  ³ 2.000E-05 ³               ---
     ³ C12WTR
C14  ³ C-12 concentration in contaminated soil (g/g)    ³ not used  ³ 3.000E-02 ³               ---
     ³ C12CZ
C14  ³ Fraction of vegetation carbon from soil          ³ not used  ³ 2.000E-02 ³               ---
     ³ CSOIL
C14  ³ Fraction of vegetation carbon from air           ³ not used  ³ 9.800E-01 ³               ---
     ³ CAIR
C14  ³ C-14 evasion layer thickness in soil (m)         ³ not used  ³ 3.000E-01 ³               ---
     ³ DMC
C14  ³ C-14 evasion flux rate from soil (1/sec)         ³ not used  ³ 7.000E-07 ³               ---
     ³ EVSN
C14  ³ C-12 evasion flux rate from soil (1/sec)         ³ not used  ³ 1.000E-10 ³               ---
     ³ REVSN
C14  ³ Fraction of grain in beef cattle feed            ³ not used  ³ 8.000E-01 ³               ---
     ³ AVFG4
C14  ³ Fraction of grain in milk cow feed               ³ not used  ³ 2.000E-01 ³               ---
     ³ AVFG5
      ³                                                 ³           ³           ³
     ³
STOR ³ Storage times of contaminated foodstuffs (days): ³           ³           ³
     ³
STOR ³   Fruits, non-leafy vegetables, and grain        ³ 1.400E+01 ³ 1.400E+01 ³               ---
     ³ STOR_T(1)
STOR ³   Leafy vegetables                               ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(2)
STOR ³   Milk                                           ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(3)
STOR ³   Meat and poultry                               ³ 2.000E+01 ³ 2.000E+01 ³               ---
     ³ STOR_T(4)
STOR ³   Fish                                           ³ 7.000E+00 ³ 7.000E+00 ³               ---
     ³ STOR_T(5)
STOR ³   Crustacea and mollusks                         ³ 7.000E+00 ³ 7.000E+00 ³               ---
     ³ STOR_T(6)
STOR ³   Well water                                     ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(7)
STOR ³   Surface water                                  ³ 1.000E+00 ³ 1.000E+00 ³               ---
     ³ STOR_T(8)
STOR ³   Livestock fodder                               ³ 4.500E+01 ³ 4.500E+01 ³               ---
     ³ STOR_T(9)
      ³                                                 ³           ³           ³
     ³
R021 ³ Thickness of building foundation (m)             ³ not used  ³ 1.500E-01 ³               ---
     ³ FLOOR1
R021 ³ Bulk density of building foundation (g/cm**3)    ³ not used  ³ 2.400E+00 ³               ---
     ³ DENSFL
R021 ³ Total porosity of the cover material             ³ not used  ³ 4.000E-01 ³               ---
```

```
     ³ TPCV
 R021 ³ Total porosity of the building foundation       ³ not used  ³ 1.000E-01 ³            ---
     ³ TPFL
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 Summary : TTLF Construction Worker - Re-baseline March 2010
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                                             Site-Specific Parameter Summary (continued)
0     ³                                         ³   User    ³           ³        Used by RESRAD
     ³  Parameter
 Menu ³                  Parameter              ³   Input   ³  Default  ³ (If different from user
input) ³    Name

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 R021 ³ Volumetric water content of the cover material   ³ not used  ³ 5.000E-02 ³            ---
     ³ PH2OCV
 R021 ³ Volumetric water content of the foundation       ³ not used  ³ 3.000E-02 ³            ---
     ³ PH2OFL
 R021 ³ Diffusion coefficient for radon gas (m/sec):     ³           ³           ³
     ³
 R021 ³   in cover material                             ³ not used  ³ 2.000E-06 ³            ---
     ³ DIFCV
 R021 ³   in foundation material                        ³ not used  ³ 3.000E-07 ³            ---
     ³ DIFFL
 R021 ³   in contaminated zone soil                     ³ not used  ³ 2.000E-06 ³            ---
     ³ DIFCZ
 R021 ³ Radon vertical dimension of mixing (m)          ³ not used  ³ 2.000E+00 ³            ---
     ³ HMIX
 R021 ³ Average building air exchange rate (1/hr)       ³ not used  ³ 5.000E-01 ³            ---
     ³ REXG
 R021 ³ Height of the building (room) (m)               ³ not used  ³ 2.500E+00 ³            ---
     ³ HRM
 R021 ³ Building interior area factor                   ³ not used  ³ 0.000E+00 ³            ---
     ³ FAI
 R021 ³ Building depth below ground surface (m)         ³ not used  ³-1.000E+00 ³            ---
     ³ DMFL
 R021 ³ Emanating power of Rn-222 gas                   ³ not used  ³ 2.500E-01 ³            ---
     ³ EMANA(1)
 R021 ³ Emanating power of Rn-220 gas                   ³ not used  ³ 1.500E-01 ³            ---
     ³ EMANA(2)
      ³                                                 ³           ³           ³
     ³
 TITL ³ Number of graphical time points                 ³     32    ³    ---    ³            ---
     ³ NPTS
 TITL ³ Maximum number of integration points for dose   ³     17    ³    ---    ³            ---
     ³ LYMAX
 TITL ³ Maximum number of integration points for risk   ³    257    ³    ---    ³            ---
```

³ KYMAX

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Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

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Contaminated Zone Dimensions

Area: 10000.00 square meters
Thickness: 2.00 meters

Cover Depth: 0.00 meters

Initial Soil Concentrations, pCi/g

Ac-227	1.000E+00
Pa-231	1.000E+00
Pb-210	1.000E+00
Ra-226	1.000E+00
Ra-228	1.000E+00
Th-228	1.000E+00
Th-230	1.000E+00
Th-232	1.000E+00
U-234	1.000E+00
U-235	1.000E+00
U-238	1.000E+00

0

Total Dose TDOSE(t), mrem/yr

Basic Radiation Dose Limit = 2.500E+01 mrem/yr

Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

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t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	9.202E+00	9.202E+00	9.202E+00	9.201E+00	9.198E+00	9.189E+00	9.163E+00	9.073E+00
M(t):	3.681E-01	3.681E-01	3.681E-01	3.680E-01	3.679E-01	3.675E-01	3.665E-01	3.629E-01

0Maximum TDOSE(t): 9.202E+00 mrem/yr at t = 0.000E+00 years

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Summary : TTLF Construction Worker - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground mrem/yr	Ground fract.	Inhalation mrem/yr	Inhalation fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	Soil mrem/yr	Soil fract.
Ac-227	4.277E-01	0.0465	6.437E-01	0.0700	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.818E-01	0.0632
Pa-231	4.794E-02	0.0052	1.348E-01	0.0146	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.327E-01	0.0470
Pb-210	1.315E-03	0.0001	2.221E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.862E-01	0.0311
Ra-226	2.398E+00	0.2606	8.705E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.722E-02	0.0062
Ra-228	1.548E+00	0.1682	5.661E-03	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.927E-02	0.0064
Th-228	1.838E+00	0.1997	2.818E-02	0.0031	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.709E-02	0.0029
Th-230	7.838E-04	0.0001	3.171E-02	0.0034	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.190E-02	0.0024
Th-232	8.862E-02	0.0096	1.598E-01	0.0174	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.126E-01	0.0122
U-234	8.831E-05	0.0000	1.284E-02	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.130E-02	0.0012
U-235	1.645E-01	0.0179	1.197E-02	0.0013	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.068E-02	0.0012
U-238	3.263E-02	0.0035	1.148E-02	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.073E-02	0.0012
Total	6.548E+00	0.7115	1.043E+00	0.1134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.611E+00	0.1751

```
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.653E+00 0.1797
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.155E-01 0.0669
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.897E-01 0.0315
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.456E+00 0.2669
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.613E+00 0.1753
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.893E+00 0.2057
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.440E-02 0.0059
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.610E-01 0.0392
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.423E-02 0.0026
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.871E-01 0.0203
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.484E-02 0.0060
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.202E+00 1.0000
0*Sum of all water independent and dependent pathways.
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                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
```

```
0              Ground          Inhalation            Radon              Plant              Meat
Milk                Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  4.143E-01 0.0450  6.235E-01 0.0678  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.635E-01 0.0612
 Pa-231  6.133E-02 0.0067  1.550E-01 0.0168  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.509E-01 0.0490
 Pb-210  1.275E-03 0.0001  2.153E-03 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.774E-01 0.0301
 Ra-226  2.397E+00 0.2605  9.381E-04 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.595E-02 0.0072
 Ra-228  1.896E+00 0.2061  1.306E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.026E-02 0.0065
 Th-228  1.279E+00 0.1390  1.962E-02 0.0021  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.886E-02 0.0020
 Th-230  1.823E-03 0.0002  3.171E-02 0.0034  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.193E-02 0.0024
 Th-232  2.987E-01 0.0325  1.609E-01 0.0175  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.198E-01 0.0130
 U-234   8.832E-05 0.0000  1.284E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.130E-02 0.0012
 U-235   1.645E-01 0.0179  1.197E-02 0.0013  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.069E-02 0.0012
 U-238   3.263E-02 0.0035  1.148E-02 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.073E-02 0.0012
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 Total   6.548E+00 0.7115  1.043E+00 0.1134  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.611E+00 0.1751
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                  As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

```
0.0000  1.601E+00 0.1740
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.672E-01 0.0725
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.808E-01 0.0305
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.464E+00 0.2678
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.970E+00 0.2141
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.318E+00 0.1432
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.546E-02 0.0060
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.794E-01 0.0630
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.423E-02 0.0026
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.871E-01 0.0203
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.484E-02 0.0060
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.202E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:39  Page  15
 Summary : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  3.887E-01 0.0422  5.851E-01 0.0636  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.287E-01 0.0575
 Pa-231  8.688E-02 0.0094  1.934E-01 0.0210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.857E-01 0.0528
 Pb-210  1.198E-03 0.0001  2.023E-03 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.606E-01 0.0283
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 Ra-226  2.395E+00 0.2603  1.067E-03 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.260E-02 0.0090
 Ra-228  2.068E+00 0.2247  1.912E-02 0.0021  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.587E-02 0.0061
 Th-228  6.198E-01 0.0674  9.503E-03 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.137E-03 0.0010
 Th-230  3.899E-03 0.0004  3.171E-02 0.0034  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.199E-02 0.0024
 Th-232  7.868E-01 0.0855  1.650E-01 0.0179  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.339E-01 0.0146
 U-234   8.837E-05 0.0000  1.284E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.130E-02 0.0012
 U-235   1.645E-01 0.0179  1.197E-02 0.0013  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.071E-02 0.0012
 U-238   3.262E-02 0.0035  1.148E-02 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.073E-02 0.0012
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   6.547E+00 0.7115  1.043E+00 0.1134  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.611E+00 0.1751
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years
0                                                   Water Dependent Pathways
0              Water              Fish               Radon              Plant              Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.503E+00 0.1633
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.660E-01 0.0832
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.638E-01 0.0287
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.479E+00 0.2694
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.143E+00 0.2329
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.384E-01 0.0694
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.760E-02 0.0063
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  1.086E+00 0.1180
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.423E-02 0.0026
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.872E-01 0.0203
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.484E-02 0.0060
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.202E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:39  Page  16
 Summary : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk               Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  3.110E-01 0.0338  4.681E-01 0.0509  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.230E-01 0.0460
 Pa-231  1.645E-01 0.0179  3.102E-01 0.0337  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.911E-01 0.0642
 Pb-210  9.626E-04 0.0001  1.626E-03 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.095E-01 0.0228
 Ra-226  2.388E+00 0.2595  1.458E-03 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.332E-01 0.0145
 Ra-228  1.215E+00 0.1321  1.322E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.883E-02 0.0031
 Th-228  4.906E-02 0.0053  7.523E-04 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.233E-04 0.0001
 Th-230  1.115E-02 0.0012  3.171E-02 0.0034  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.232E-02 0.0024
 Th-232  2.210E+00 0.2402  1.796E-01 0.0195  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.694E-01 0.0184
 U-234   8.881E-05 0.0000  1.284E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.130E-02 0.0012
 U-235   1.644E-01 0.0179  1.201E-02 0.0013  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.079E-02 0.0012
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 U-238   3.262E-02 0.0035  1.148E-02 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.073E-02 0.0012
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   6.547E+00 0.7116  1.043E+00 0.1134  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.611E+00 0.1751
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.202E+00 0.1307
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.066E+00 0.1158
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.121E-01 0.0230
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.523E+00 0.2742
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.257E+00 0.1366
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.054E-02 0.0055
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.518E-02 0.0071
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.559E+00 0.2781
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.423E-02 0.0026
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.872E-01 0.0204
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.482E-02 0.0060
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.201E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:39  Page  17
 Summary : TTLF Construction Worker - Re-baseline March 2010
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File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

0

Water Independent Pathways (Inhalation excludes radon)

0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	1.645E-01	0.0179	2.475E-01	0.0269	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.237E-01	0.0243
Pa-231	3.107E-01	0.0338	5.302E-01	0.0576	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.896E-01	0.0859
Pb-210	5.158E-04	0.0001	8.713E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.122E-01	0.0122
Ra-226	2.368E+00	0.2574	2.194E-03	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.284E-01	0.0248
Ra-228	1.156E-01	0.0126	1.286E-03	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.683E-03	0.0003
Th-228	3.496E-05	0.0000	5.361E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.154E-07	0.0000
Th-230	3.174E-02	0.0035	3.171E-02	0.0034	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.392E-02	0.0026
Th-232	3.358E+00	0.3651	1.923E-01	0.0209	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.962E-01	0.0213
U-234	9.260E-05	0.0000	1.283E-02	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.130E-02	0.0012
U-235	1.644E-01	0.0179	1.218E-02	0.0013	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.108E-02	0.0012
U-238	3.259E-02	0.0035	1.147E-02	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.072E-02	0.0012
Total	6.545E+00	0.7116	1.043E+00	0.1133	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.610E+00	0.1750

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

0

Water Dependent Pathways

0

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	

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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.356E-01 0.0691
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.631E+00 0.1773
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.136E-01 0.0124
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.598E+00 0.2825
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.195E-01 0.0130
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.601E-05 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.738E-02 0.0095
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.746E+00 0.4073
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.422E-02 0.0026
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.877E-01 0.0204
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.478E-02 0.0060
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.198E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:39  Page  18
 Summary : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                       As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  1.768E-02 0.0019  2.660E-02 0.0029  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.404E-02 0.0026
 Pa-231  4.561E-01 0.0496  7.488E-01 0.0815  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.862E-01 0.1073
 Pb-210  5.807E-05 0.0000  9.810E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.264E-02 0.0014
 Ra-226  2.296E+00 0.2499  2.882E-03 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.187E-01 0.0347
 Ra-228  2.501E-05 0.0000  2.784E-07 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.805E-07 0.0000
 Th-228  3.378E-16 0.0000  5.179E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.980E-18 0.0000
 Th-230  1.024E-01 0.0111  3.175E-02 0.0035  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.269E-02 0.0036
 Th-232  3.471E+00 0.3777  1.934E-01 0.0210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.987E-01 0.0216
 U-234   1.346E-04 0.0000  1.281E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.128E-02 0.0012
 U-235   1.646E-01 0.0179  1.315E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.241E-02 0.0014
 U-238   3.250E-02 0.0035  1.144E-02 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.069E-02 0.0012
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
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 Total   6.540E+00 0.7118  1.041E+00 0.1133  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.607E+00 0.1749
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                    As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.833E-02 0.0074
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.191E+00 0.2385
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.279E-02 0.0014
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.618E+00 0.2849
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  2.587E-05 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.479E-16 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.668E-01 0.0182
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.863E+00 0.4204
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.423E-02 0.0026
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.901E-01 0.0207
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.463E-02 0.0059
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.189E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:39  Page  19
 Summary : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  3.020E-05 0.0000  4.544E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.107E-05 0.0000
 Pa-231  4.695E-01 0.0512  7.684E-01 0.0839  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.001E+00 0.1093
 Pb-210  1.132E-07 0.0000  1.913E-07 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.464E-05 0.0000
 Ra-226  2.103E+00 0.2295  2.730E-03 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.035E-01 0.0331
 Ra-228  8.450E-16 0.0000  9.406E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.962E-17 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.920E-01 0.0319  3.187E-02 0.0035  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.982E-02 0.0065
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 Th-232  3.463E+00 0.3779  1.930E-01 0.0211  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.983E-01 0.0216
 U-234   4.898E-04 0.0001  1.276E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.127E-02 0.0012
 U-235   1.652E-01 0.0180  1.628E-02 0.0018  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.653E-02 0.0018
 U-238   3.224E-02 0.0035  1.136E-02 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.061E-02 0.0012
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   6.525E+00 0.7121  1.036E+00 0.1131  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.601E+00 0.1748
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat
Milk          All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.167E-04 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.239E+00 0.2444
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.495E-05 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.409E+00 0.2629
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.740E-16 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.837E-01 0.0419
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.854E+00 0.4206
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.452E-02 0.0027
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.980E-01 0.0216
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.421E-02 0.0059
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.163E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:39  Page  20
 Summary : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon              Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  6.219E-15 0.0000  9.360E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.459E-15 0.0000
 Pa-231  4.550E-01 0.0502  7.447E-01 0.0821  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.703E-01 0.1069
 Pb-210  3.709E-17 0.0000  6.266E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.072E-15 0.0000
 Ra-226  1.545E+00 0.1703  2.006E-03 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.230E-01 0.0246
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  8.326E-01 0.0918  3.213E-02 0.0035  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.376E-01 0.0152
 Th-232  3.436E+00 0.3787  1.915E-01 0.0211  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.968E-01 0.0217
 U-234   4.066E-03 0.0004  1.258E-02 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.156E-02 0.0013
 U-235   1.674E-01 0.0185  2.688E-02 0.0030  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.047E-02 0.0034
 U-238   3.135E-02 0.0035  1.107E-02 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.034E-02 0.0011
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 Total   6.472E-00 0.7133  1.021E+00 0.1125  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.580E+00 0.1742
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways
```

(p)

As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

0 Water Dependent Pathways

0 Water Fish Radon Plant Meat Milk All Pathways*

Radio- Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.404E-14	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.170E+00	0.2392
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.171E-15	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.770E+00	0.1951
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.002E+00	0.1105
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.824E+00	0.4215
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.821E-02	0.0031
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.248E-01	0.0248
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.276E-02	0.0058
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.073E+00	1.0000

0*Sum of all water independent and dependent pathways.

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Dose/Source Ratios Summed Over All Pathways

Parent and Progeny Principal Radionuclide Contributions Indicated

0 Parent Product Thread DSR(j,t) At Time in Years (mrem/yr)/(pCi/g)

```
    (i)        (j)     Fraction   0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02
1.000E+03
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 Ac-227+D   Ac-227+D   1.000E+00  1.653E+00 1.601E+00 1.503E+00 1.202E+00 6.356E-01 6.833E-02 1.167E-04
2.404E-14
0Pa-231     Pa-231     1.000E+00  5.890E-01 5.890E-01 5.889E-01 5.887E-01 5.882E-01 5.864E-01 5.811E-01
5.632E-01
 Pa-231     Ac-227+D   1.000E+00  2.645E-02 7.825E-02 1.770E-01 4.770E-01 1.042E+00 1.605E+00 1.658E+00
1.607E+00
 Pa-231     äDSR(j)               6.155E-01 6.672E-01 7.660E-01 1.066E+00 1.631E+00 2.191E+00 2.239E+00
2.170E+00
0Pb-210+D   Pb-210+D   1.000E+00  2.897E-01 2.808E-01 2.638E-01 2.121E-01 1.136E-01 1.279E-02 2.495E-05
8.171E-15
0Ra-226+D   Ra-226+D   1.000E+00  2.452E+00 2.451E+00 2.449E+00 2.441E+00 2.420E+00 2.346E+00 2.148E+00
1.579E+00
 Ra-226+D   Pb-210+D   1.000E+00  4.525E-03 1.339E-02 3.029E-02 8.168E-02 1.786E-01 2.716E-01 2.605E-01
1.914E-01
 Ra-226+D   äDSR(j)               2.456E+00 2.464E+00 2.479E+00 2.523E+00 2.598E+00 2.618E+00 2.409E+00
1.770E+00
0Ra-228+D   Ra-228+D   1.000E+00  1.264E+00 1.120E+00 8.803E-01 3.786E-01 3.396E-02 7.347E-06 2.482E-16
0.000E+00
 Ra-228+D   Th-228+D   1.000E+00  3.490E-01 8.495E-01 1.262E+00 8.786E-01 8.557E-02 1.852E-05 6.258E-16
0.000E+00
 Ra-228+D   äDSR(j)               1.613E+00 1.970E+00 2.143E+00 1.257E+00 1.195E-01 2.587E-05 8.740E-16
0.000E+00
0Th-228+D   Th-228+D   1.000E+00  1.893E+00 1.318E+00 6.384E-01 5.054E-02 3.601E-05 3.479E-16 0.000E+00
0.000E+00
0Th-230     Th-230     1.000E+00  5.386E-02 5.386E-02 5.386E-02 5.385E-02 5.383E-02 5.376E-02 5.354E-02
5.280E-02
 Th-230     Ra-226+D   1.000E+00  5.311E-04 1.593E-03 3.715E-03 1.113E-02 3.218E-02 1.043E-01 2.981E-01
8.505E-01
 Th-230     Pb-210+D   1.000E+00  6.552E-07 4.545E-06 2.354E-05 1.962E-04 1.368E-03 8.707E-03 3.204E-02
9.908E-02
 Th-230     äDSR(j)               5.440E-02 5.546E-02 5.760E-02 6.518E-02 8.738E-02 1.668E-01 3.837E-01
1.002E+00
0Th-232     Th-232     1.000E+00  2.687E-01 2.687E-01 2.687E-01 2.687E-01 2.686E-01 2.684E-01 2.678E-01
2.657E-01
 Th-232     Ra-228+D   1.000E+00  7.771E-02 2.212E-01 4.612E-01 9.629E-01 1.307E+00 1.340E+00 1.337E+00
1.327E+00
 Th-232     Th-228+D   1.000E+00  1.459E-02 8.952E-02 3.559E-01 1.327E+00 2.170E+00 2.254E+00 2.249E+00
2.232E+00
 Th-232     äDSR(j)               3.610E-01 5.794E-01 1.086E+00 2.559E+00 3.746E+00 3.863E+00 3.854E+00
3.824E+00
0U-234      U-234      1.000E+00  2.423E-02 2.423E-02 2.423E-02 2.422E-02 2.420E-02 2.413E-02 2.392E-02
2.322E-02
 U-234      Th-230     1.000E+00  2.424E-07 7.273E-07 1.697E-06 5.090E-06 1.477E-05 4.858E-05 1.443E-04
4.701E-04
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 U-234      Ra-226+D   1.000E+00  1.594E-09 1.115E-08 5.894E-08 5.267E-07 4.426E-06 4.749E-05 4.107E-04
4.066E-03
 U-234      Pb-210+D   1.000E+00  1.477E-12 2.200E-11 2.529E-10 6.358E-09 1.346E-07 3.169E-06 3.991E-05
4.581E-04
 U-234      äDSR(j)               2.423E-02 2.423E-02 2.423E-02 2.423E-02 2.422E-02 2.423E-02 2.452E-02
2.821E-02
0U-235+D    U-235+D    1.000E+00  1.871E-01 1.871E-01 1.871E-01 1.871E-01 1.869E-01 1.864E-01 1.849E-01
1.798E-01
 U-235+D    Pa-231     1.000E+00  6.231E-06 1.869E-05 4.361E-05 1.308E-04 3.796E-04 1.247E-03 3.698E-03
1.195E-02
 U-235+D    Ac-227+D   1.000E+00  1.871E-07 1.298E-06 6.721E-06 5.598E-05 3.899E-04 2.491E-03 9.446E-03
3.302E-02
 U-235+D    äDSR(j)               1.871E-01 1.871E-01 1.872E-01 1.872E-01 1.877E-01 1.901E-01 1.980E-01
2.248E-01
0U-238      U-238      5.400E-05  1.171E-06 1.171E-06 1.171E-06 1.171E-06 1.170E-06 1.166E-06 1.157E-06
1.125E-06
0U-238+D    U-238+D    9.999E-01  5.484E-02 5.484E-02 5.484E-02 5.482E-02 5.478E-02 5.462E-02 5.419E-02
5.269E-02
 U-238+D    U-234      9.999E-01  3.435E-08 1.030E-07 2.404E-07 7.210E-07 2.093E-06 6.875E-06 2.039E-05
6.594E-05
 U-238+D    Th-230     9.999E-01  2.291E-13 1.604E-12 8.475E-12 7.580E-11 6.387E-10 6.918E-09 6.143E-08
6.648E-07
 U-238+D    Ra-226+D   9.999E-01  1.130E-15 1.694E-14 1.976E-13 5.235E-12 1.277E-10 4.525E-09 1.177E-07
3.962E-06
 U-238+D    Pb-210+D   9.999E-01  8.383E-19 2.584E-17 6.433E-16 4.818E-14 3.040E-12 2.532E-10 1.046E-08
4.326E-07
 U-238+D    äDSR(j)               5.484E-02 5.484E-02 5.484E-02 5.482E-02 5.478E-02 5.463E-02 5.421E-02
5.276E-02
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ÍÍÍÍÍÍÍÍÍÍ
 The DSR includes contributions from associated (half-life ó 180 days) daughters.

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                         Single Radionuclide Soil Guidelines G(i,t) in pCi/g

                            Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide
   (i)    t= 0.000E+00   1.000E+00   3.000E+00   1.000E+01   3.000E+01   1.000E+02   3.000E+02   1.000E+03
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 Ac-227      1.512E+01   1.561E+01   1.664E+01   2.080E+01   3.933E+01   3.659E+02   2.142E+05  *7.232E+13

 Pa-231      4.062E+01   3.747E+01   3.264E+01   2.346E+01   1.533E+01   1.141E+01   1.116E+01   1.152E+01

 Pb-210      8.629E+01   8.903E+01   9.476E+01   1.179E+02   2.200E+02   1.954E+03   1.002E+06  *7.634E+13
```

Ra-226	1.018E+01	1.015E+01	1.009E+01	9.910E+00	9.622E+00	9.550E+00	1.038E+01	1.412E+01
Ra-228	1.550E+01	1.269E+01	1.167E+01	1.989E+01	2.092E+02	9.665E+05	*2.726E+14	*2.726E+14
Th-228	1.321E+01	1.897E+01	3.916E+01	4.947E+02	6.942E+05	*8.195E+14	*8.195E+14	*8.195E+14
Th-230	4.596E+02	4.508E+02	4.340E+02	3.836E+02	2.861E+02	1.499E+02	6.516E+01	2.494E+01
Th-232	6.925E+01	4.314E+01	2.302E+01	9.770E+00	6.673E+00	6.472E+00	6.486E+00	6.537E+00
U-234	1.032E+03	1.032E+03	1.032E+03	1.032E+03	1.032E+03	1.032E+03	1.020E+03	8.862E+02
U-235	1.336E+02	1.336E+02	1.336E+02	1.335E+02	1.332E+02	1.315E+02	1.262E+02	1.112E+02
U-238	4.558E+02	4.559E+02	4.559E+02	4.560E+02	4.564E+02	4.576E+02	4.612E+02	4.738E+02
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ

*At specific activity limit

0

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ
Ac-227	1.000E+00	0.000E+00	1.653E+00	1.512E+01	1.653E+00	1.512E+01
Pa-231	1.000E+00	196.0 ñ 0.4	2.247E+00	1.113E+01	6.155E-01	4.062E+01
Pb-210	1.000E+00	0.000E+00	2.897E-01	8.629E+01	2.897E-01	8.629E+01
Ra-226	1.000E+00	65.8 ñ 0.1	2.633E+00	9.495E+00	2.456E+00	1.018E+01
Ra-228	1.000E+00	2.690 ñ 0.005	2.147E+00	1.164E+01	1.613E+00	1.550E+01
Th-228	1.000E+00	0.000E+00	1.893E+00	1.321E+01	1.893E+00	1.321E+01
Th-230	1.000E+00	1.000E+03	1.002E+00	2.494E+01	5.440E-02	4.596E+02
Th-232	1.000E+00	78.1 ñ 0.2	3.863E+00	6.471E+00	3.610E-01	6.925E+01
U-234	1.000E+00	1.000E+03	2.821E-02	8.862E+02	2.423E-02	1.032E+03
U-235	1.000E+00	1.000E+03	2.248E-01	1.112E+02	1.871E-01	1.336E+02
U-238	1.000E+00	0.000E+00	5.484E-02	4.558E+02	5.484E-02	4.558E+02
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ

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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02

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1.000E+03
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ÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    1.653E+00 1.601E+00 1.503E+00 1.202E+00 6.356E-01 6.833E-02 1.167E-04
2.404E-14
 Ac-227  Pa-231  1.000E+00    2.645E-02 7.825E-02 1.770E-01 4.770E-01 1.042E+00 1.605E+00 1.658E+00
1.607E+00
 Ac-227  U-235   1.000E+00    1.871E-07 1.298E-06 6.721E-06 5.598E-05 3.899E-04 2.491E-03 9.446E-03
3.302E-02
 Ac-227  äDOSE(j)             1.680E+00 1.680E+00 1.680E+00 1.679E+00 1.678E+00 1.676E+00 1.668E+00
1.640E+00
0Pa-231  Pa-231  1.000E+00    5.890E-01 5.890E-01 5.889E-01 5.887E-01 5.882E-01 5.864E-01 5.811E-01
5.632E-01
 Pa-231  U-235   1.000E+00    6.231E-06 1.869E-05 4.361E-05 1.308E-04 3.796E-04 1.247E-03 3.698E-03
1.195E-02
 Pa-231  äDOSE(j)             5.890E-01 5.890E-01 5.890E-01 5.889E-01 5.886E-01 5.876E-01 5.848E-01
5.751E-01
0Pb-210  Pb-210  1.000E+00    2.897E-01 2.808E-01 2.638E-01 2.121E-01 1.136E-01 1.279E-02 2.495E-05
8.171E-15
 Pb-210  Ra-226  1.000E+00    4.525E-03 1.339E-02 3.029E-02 8.168E-02 1.786E-01 2.716E-01 2.605E-01
1.914E-01
 Pb-210  Th-230  1.000E+00    6.552E-07 4.545E-06 2.354E-05 1.962E-04 1.368E-03 8.707E-03 3.204E-02
9.908E-02
 Pb-210  U-234   1.000E+00    1.477E-12 2.200E-11 2.529E-10 6.358E-09 1.346E-07 3.169E-06 3.991E-05
4.581E-04
 Pb-210  U-238   9.999E-01    8.383E-19 2.584E-17 6.433E-16 4.818E-14 3.040E-12 2.532E-10 1.046E-08
4.326E-07
 Pb-210  äDOSE(j)             2.942E-01 2.942E-01 2.941E-01 2.939E-01 2.936E-01 2.931E-01 2.926E-01
2.910E-01
0Ra-226  Ra-226  1.000E+00    2.452E+00 2.451E+00 2.449E+00 2.441E+00 2.420E+00 2.346E+00 2.148E+00
1.579E+00
 Ra-226  Th-230  1.000E+00    5.311E-04 1.593E-03 3.715E-03 1.113E-02 3.218E-02 1.043E-01 2.981E-01
8.505E-01
 Ra-226  U-234   1.000E+00    1.594E-09 1.115E-08 5.894E-08 5.267E-07 4.426E-06 4.749E-05 4.107E-04
4.066E-03
 Ra-226  U-238   9.999E-01    1.130E-15 1.694E-14 1.976E-13 5.235E-12 1.277E-10 4.525E-09 1.177E-07
3.962E-06
 Ra-226  äDOSE(j)             2.452E+00 2.452E+00 2.452E+00 2.452E+00 2.452E+00 2.451E+00 2.447E+00
2.433E+00
0Ra-228  Ra-228  1.000E+00    1.264E+00 1.120E+00 8.803E-01 3.786E-01 3.396E-02 7.347E-06 2.482E-16
0.000E+00
 Ra-228  Th-232  1.000E+00    7.771E-02 2.212E-01 4.612E-01 9.629E-01 1.307E+00 1.340E+00 1.337E+00
1.327E+00
 Ra-228  äDOSE(j)             1.342E+00 1.342E+00 1.342E+00 1.341E+00 1.341E+00 1.340E+00 1.337E+00
1.327E+00
0Th-228  Ra-228  1.000E+00    3.490E-01 8.495E-01 1.262E+00 8.786E-01 8.557E-02 1.852E-05 6.258E-16
0.000E+00
 Th-228  Th-228  1.000E+00    1.893E+00 1.318E+00 6.384E-01 5.054E-02 3.601E-05 3.479E-16 0.000E+00
```

```
0.000E+00
 Th-228  Th-232  1.000E+00    1.459E-02 8.952E-02 3.559E-01 1.327E+00 2.170E+00 2.254E+00 2.249E+00
2.232E+00
 Th-228  äDOSE(j)            2.257E+00 2.257E+00 2.257E+00 2.257E+00 2.256E+00 2.254E+00 2.249E+00
2.232E+00
0Th-230  Th-230  1.000E+00    5.386E-02 5.386E-02 5.386E-02 5.385E-02 5.383E-02 5.376E-02 5.354E-02
5.280E-02
 Th-230  U-234   1.000E+00    2.424E-07 7.273E-07 1.697E-06 5.090E-06 1.477E-05 4.858E-05 1.443E-04
4.701E-04
 Th-230  U-238   9.999E-01    2.291E-13 1.604E-12 8.475E-12 7.580E-11 6.387E-10 6.918E-09 6.143E-08
6.648E-07
 Th-230  äDOSE(j)            5.387E-02 5.386E-02 5.386E-02 5.386E-02 5.385E-02 5.381E-02 5.369E-02
5.327E-02
0Th-232  Th-232  1.000E+00    2.687E-01 2.687E-01 2.687E-01 2.687E-01 2.686E-01 2.684E-01 2.678E-01
2.657E-01
0U-234   U-234   1.000E+00    2.423E-02 2.423E-02 2.423E-02 2.422E-02 2.420E-02 2.413E-02 2.392E-02
2.322E-02
 U-234   U-238   9.999E-01    3.435E-08 1.030E-07 2.404E-07 7.210E-07 2.093E-06 6.875E-06 2.039E-05
6.594E-05
 U-234   äDOSE(j)            2.423E-02 2.423E-02 2.423E-02 2.422E-02 2.420E-02 2.414E-02 2.394E-02
2.328E-02
0U-235   U-235   1.000E+00    1.871E-01 1.871E-01 1.871E-01 1.871E-01 1.869E-01 1.864E-01 1.849E-01
1.798E-01
0U-238   U-238   5.400E-05    1.171E-06 1.171E-06 1.171E-06 1.171E-06 1.170E-06 1.166E-06 1.157E-06
1.125E-06
 U-238   U-238   9.999E-01    5.484E-02 5.484E-02 5.484E-02 5.482E-02 5.478E-02 5.462E-02 5.419E-02
5.269E-02
 U-238   äDOSE(j)            5.484E-02 5.484E-02 5.484E-02 5.482E-02 5.478E-02 5.462E-02 5.419E-02
5.269E-02
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ÍÍÍÍÍÍÍÍÍ
 THF(i) is the thread fraction of the parent nuclide.
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:39  Page  24
 Summary : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                                   Individual Nuclide Soil Concentration
                                 Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                        S(j,t), pCi/g
   (j)     (i)             t= 0.000E+00 1.000E+00 3.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02
1.000E+03
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    1.000E+00 9.686E-01 9.088E-01 7.272E-01 3.845E-01 4.133E-02 7.059E-05
1.454E-14
 Ac-227  Pa-231  1.000E+00    0.000E+00 3.133E-02 9.108E-02 2.726E-01 6.145E-01 9.547E-01 9.871E-01
9.567E-01
 Ac-227  U-235   1.000E+00    0.000E+00 3.332E-07 2.937E-06 3.036E-05 2.256E-04 1.473E-03 5.613E-03
```

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1.965E-02
 Ac-227  äS(j):                1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.992E-01 9.975E-01 9.928E-01
9.763E-01
0Pa-231  Pa-231  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.987E-01 9.955E-01 9.866E-01
9.561E-01
 Pa-231  U-235   1.000E+00    0.000E+00 2.116E-05 6.347E-05 2.115E-04 6.339E-04 2.107E-03 6.267E-03
2.028E-02
 Pa-231  äS(j):                1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.976E-01 9.929E-01
9.764E-01
0Pb-210  Pb-210  1.000E+00    1.000E+00 9.693E-01 9.106E-01 7.320E-01 3.922E-01 4.416E-02 8.612E-05
2.821E-14
 Pb-210  Ra-226  1.000E+00    0.000E+00 3.060E-02 8.896E-02 2.664E-01 6.009E-01 9.224E-01 8.854E-01
6.506E-01
 Pb-210  Th-230  1.000E+00    0.000E+00 6.662E-06 5.872E-05 6.074E-04 4.518E-03 2.939E-02 1.087E-01
3.366E-01
 Pb-210  U-234   1.000E+00    0.000E+00 2.004E-11 5.327E-10 1.870E-08 4.367E-07 1.064E-05 1.351E-04
1.555E-03
 Pb-210  U-238   9.999E-01    0.000E+00 1.423E-17 1.138E-15 1.345E-13 9.692E-12 8.454E-10 3.536E-08
1.468E-06
 Pb-210  äS(j):                1.000E+00 9.999E-01 9.997E-01 9.990E-01 9.977E-01 9.959E-01 9.943E-01
9.888E-01
0Ra-226  Ra-226  1.000E+00    1.000E+00 9.996E-01 9.987E-01 9.956E-01 9.869E-01 9.569E-01 8.763E-01
6.439E-01
 Ra-226  Th-230  1.000E+00    0.000E+00 4.331E-04 1.299E-03 4.322E-03 1.291E-02 4.234E-02 1.214E-01
3.467E-01
 Ra-226  U-234   1.000E+00    0.000E+00 1.950E-09 1.754E-08 1.947E-07 1.746E-06 1.918E-05 1.669E-04
1.656E-03
 Ra-226  U-238   9.999E-01    0.000E+00 1.842E-15 4.973E-14 1.840E-12 4.955E-11 1.818E-09 4.778E-08
1.613E-06
 Ra-226  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.978E-01
9.922E-01
0Ra-228  Ra-228  1.000E+00    1.000E+00 8.864E-01 6.965E-01 2.995E-01 2.687E-02 5.813E-06 1.964E-16
0.000E+00
 Ra-228  Th-232  1.000E+00    0.000E+00 1.136E-01 3.035E-01 7.004E-01 9.728E-01 9.989E-01 9.967E-01
9.890E-01
 Ra-228  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0Th-228  Ra-228  1.000E+00    0.000E+00 2.853E-01 5.384E-01 4.089E-01 4.024E-02 8.711E-06 2.943E-16
0.000E+00
 Th-228  Th-228  1.000E+00    1.000E+00 6.961E-01 3.372E-01 2.670E-02 1.902E-05 1.838E-16 0.000E+00
0.000E+00
 Th-228  Th-232  1.000E+00    0.000E+00 1.864E-02 1.243E-01 5.643E-01 9.594E-01 9.989E-01 9.967E-01
9.890E-01
 Th-228  äS(j):                1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0Th-230  Th-230  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.994E-01 9.980E-01 9.940E-01
9.802E-01
 Th-230  U-234   1.000E+00    0.000E+00 9.002E-06 2.700E-05 8.999E-05 2.698E-04 8.974E-04 2.675E-03
```

```
8.723E-03
 Th-230  U-238   9.999E-01    0.000E+00 1.276E-11 1.148E-10 1.275E-09 1.147E-08 1.272E-07 1.137E-06
1.233E-05
 Th-230  äS(j):               1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.889E-01
0Th-232  Th-232  1.000E+00    1.000E+00 1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01
9.890E-01
0U-234   U-234   1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.987E-01 9.957E-01 9.872E-01
9.580E-01
 U-234   U-238   9.999E-01    0.000E+00 2.835E-06 8.503E-06 2.834E-05 8.494E-05 2.823E-04 8.399E-04
2.720E-03
 U-234   äS(j):               1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
0U-235   U-235   1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
0U-238   U-238   5.400E-05    5.400E-05 5.400E-05 5.399E-05 5.398E-05 5.394E-05 5.378E-05 5.336E-05
5.188E-05
 U-238   U-238   9.999E-01    9.999E-01 9.999E-01 9.998E-01 9.995E-01 9.987E-01 9.960E-01 9.880E-01
9.607E-01
 U-238   äS(j):               1.000E+00 1.000E+00 9.999E-01 9.996E-01 9.988E-01 9.960E-01 9.881E-01
9.608E-01
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ    ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ
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 THF(i) is the thread fraction of the parent nuclide.
0RESCALC.EXE execution time =    4.42 seconds
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Appendix G-6
RESRAD Risk Output for Construction Worker

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Table of Contents
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Part III: Intake Quantities and Health Risk Factors
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Cancer Risk Slope Factors 2
Risk Slope and ETFG for the Ground Pathway 4
Amount of Intake Quantities and Excess Cancer Risks
Time= 0.000E+00 5
Time= 1.000E+00 9
Time= 3.000E+00 13
Time= 1.000E+01 17
Time= 3.000E+01 21
Time= 1.000E+02 25
Time= 3.000E+02 29
Time= 1.000E+03 33

Cancer Risk Slope Factors Summary Table
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-1	Ground external radiation slope factors, 1/yr per (pCi/g):			
Sf-1	Ac-227+D	1.47E-06	3.48E-10	SLPF(1,1)
Sf-1	Pa-231	1.39E-07	1.39E-07	SLPF(2,1)
Sf-1	Pb-210+D	4.21E-09	1.41E-09	SLPF(3,1)
Sf-1	Ra-226+D	8.49E-06	2.29E-08	SLPF(4,1)
Sf-1	Ra-228+D	4.53E-06	0.00E+00	SLPF(5,1)
Sf-1	Th-228+D	7.76E-06	5.59E-09	SLPF(6,1)
Sf-1	Th-230	8.19E-10	8.19E-10	SLPF(7,1)
Sf-1	Th-232	3.42E-10	3.42E-10	SLPF(8,1)
Sf-1	U-234	2.52E-10	2.52E-10	SLPF(9,1)
Sf-1	U-235+D	5.43E-07	5.18E-07	SLPF(10,1)
Sf-1	U-238	4.99E-11	4.99E-11	SLPF(11,1)
Sf-1	U-238+D	1.14E-07	4.99E-11	SLPF(12,1)
Sf-2	Inhalation, slope factors, 1/(pCi):			

```
 Sf-2  ³ Ac-227+D                                          ³ 2.13E-07  ³ 1.49E-07  ³ SLPF(  1,2)
 Sf-2  ³ Pa-231                                            ³ 7.62E-08  ³ 7.62E-08  ³ SLPF(  2,2)
 Sf-2  ³ Pb-210+D                                          ³ 3.08E-08  ³ 1.58E-08  ³ SLPF(  3,2)
 Sf-2  ³ Ra-226+D                                          ³ 2.83E-08  ³ 2.82E-08  ³ SLPF(  4,2)
 Sf-2  ³ Ra-228+D                                          ³ 4.37E-08  ³ 4.37E-08  ³ SLPF(  5,2)
 Sf-2  ³ Th-228+D                                          ³ 1.44E-07  ³ 1.32E-07  ³ SLPF(  6,2)
 Sf-2  ³ Th-230                                            ³ 3.40E-08  ³ 3.40E-08  ³ SLPF(  7,2)
 Sf-2  ³ Th-232                                            ³ 4.33E-08  ³ 4.33E-08  ³ SLPF(  8,2)
 Sf-2  ³ U-234                                             ³ 2.78E-08  ³ 2.78E-08  ³ SLPF(  9,2)
 Sf-2  ³ U-235+D                                           ³ 2.50E-08  ³ 2.50E-08  ³ SLPF( 10,2)
 Sf-2  ³ U-238                                             ³ 2.36E-08  ³ 2.36E-08  ³ SLPF( 11,2)
 Sf-2  ³ U-238+D                                           ³ 2.36E-08  ³ 2.36E-08  ³ SLPF( 12,2)
       ³                                                   ³           ³           ³
 Sf-3  ³ Food ingestion, slope factors, 1/(pCi):           ³           ³           ³
 Sf-3  ³ Ac-227+D                                          ³ 6.53E-10  ³ 2.45E-10  ³ SLPF(  1,3)
 Sf-3  ³ Pa-231                                            ³ 2.26E-10  ³ 2.26E-10  ³ SLPF(  2,3)
 Sf-3  ³ Pb-210+D                                          ³ 3.44E-09  ³ 1.18E-09  ³ SLPF(  3,3)
 Sf-3  ³ Ra-226+D                                          ³ 5.15E-10  ³ 5.14E-10  ³ SLPF(  4,3)
 Sf-3  ³ Ra-228+D                                          ³ 1.43E-09  ³ 1.43E-09  ³ SLPF(  5,3)
 Sf-3  ³ Th-228+D                                          ³ 4.22E-10  ³ 1.48E-10  ³ SLPF(  6,3)
 Sf-3  ³ Th-230                                            ³ 1.19E-10  ³ 1.19E-10  ³ SLPF(  7,3)
 Sf-3  ³ Th-232                                            ³ 1.33E-10  ³ 1.33E-10  ³ SLPF(  8,3)
 Sf-3  ³ U-234                                             ³ 9.55E-11  ³ 9.55E-11  ³ SLPF(  9,3)
 Sf-3  ³ U-235+D                                           ³ 9.76E-11  ³ 9.44E-11  ³ SLPF( 10,3)
 Sf-3  ³ U-238                                             ³ 8.66E-11  ³ 8.66E-11  ³ SLPF( 11,3)
 Sf-3  ³ U-238+D                                           ³ 1.21E-10  ³ 8.66E-11  ³ SLPF( 12,3)
       ³                                                   ³           ³           ³
 Sf-3  ³ Water ingestion, slope factors, 1/(pCi):          ³           ³           ³
 Sf-3  ³ Ac-227+D                                          ³ 4.86E-10  ³ 2.01E-10  ³ SLPF(  1,4)
 Sf-3  ³ Pa-231                                            ³ 1.73E-10  ³ 1.73E-10  ³ SLPF(  2,4)
 Sf-3  ³ Pb-210+D                                          ³ 2.66E-09  ³ 8.81E-10  ³ SLPF(  3,4)
 Sf-3  ³ Ra-226+D                                          ³ 3.86E-10  ³ 3.85E-10  ³ SLPF(  4,4)
 Sf-3  ³ Ra-228+D                                          ³ 1.04E-09  ³ 1.04E-09  ³ SLPF(  5,4)
 Sf-3  ³ Th-228+D                                          ³ 2.99E-10  ³ 1.07E-10  ³ SLPF(  6,4)
 Sf-3  ³ Th-230                                            ³ 9.10E-11  ³ 9.10E-11  ³ SLPF(  7,4)
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page   3
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                         Cancer Risk Slope Factors Summary Table (continued)
                                   Risk Library: FGR 13 Morbidity
0       ³                                                   ³  Current  ³   Base    ³  Parameter
  Menu  ³                          Parameter                ³   Value   ³   Case*   ³    Name
 ÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Sf-3  ³ Th-232                                              ³ 1.01E-10  ³ 1.01E-10  ³ SLPF(  8,4)
 Sf-3  ³ U-234                                               ³ 7.07E-11  ³ 7.07E-11  ³ SLPF(  9,4)
 Sf-3  ³ U-235+D                                             ³ 7.18E-11  ³ 6.96E-11  ³ SLPF( 10,4)
 Sf-3  ³ U-238                                               ³ 6.40E-11  ³ 6.40E-11  ³ SLPF( 11,4)
 Sf-3  ³ U-238+D                                             ³ 8.71E-11  ³ 6.40E-11  ³ SLPF( 12,4)
       ³                                                     ³           ³           ³
 Sf-3  ³ Soil ingestion, slope factors, 1/(pCi):             ³           ³           ³
 Sf-3  ³ Ac-227+D                                            ³ 6.53E-10  ³ 2.45E-10  ³ SLPF(  1,5)
 Sf-3  ³ Pa-231                                              ³ 2.26E-10  ³ 2.26E-10  ³ SLPF(  2,5)
 Sf-3  ³ Pb-210+D                                            ³ 3.44E-09  ³ 1.18E-09  ³ SLPF(  3,5)
 Sf-3  ³ Ra-226+D                                            ³ 5.15E-10  ³ 5.14E-10  ³ SLPF(  4,5)
 Sf-3  ³ Ra-228+D                                            ³ 1.43E-09  ³ 1.43E-09  ³ SLPF(  5,5)
 Sf-3  ³ Th-228+D                                            ³ 4.22E-10  ³ 1.48E-10  ³ SLPF(  6,5)
 Sf-3  ³ Th-230                                              ³ 1.19E-10  ³ 1.19E-10  ³ SLPF(  7,5)
 Sf-3  ³ Th-232                                              ³ 1.33E-10  ³ 1.33E-10  ³ SLPF(  8,5)
 Sf-3  ³ U-234                                               ³ 9.55E-11  ³ 9.55E-11  ³ SLPF(  9,5)
 Sf-3  ³ U-235+D                                             ³ 9.76E-11  ³ 9.44E-11  ³ SLPF( 10,5)
 Sf-3  ³ U-238                                               ³ 8.66E-11  ³ 8.66E-11  ³ SLPF( 11,5)
 Sf-3  ³ U-238+D                                             ³ 1.21E-10  ³ 8.66E-11  ³ SLPF( 12,5)
       ³                                                     ³           ³           ³
 Sf-Rn ³ Radon Inhalation slope factors, 1/(pCi):            ³           ³           ³
 Sf-Rn ³ Rn-222                                              ³ 1.80E-12  ³ 1.80E-12  ³ SLPFRN(1,1)
 Sf-Rn ³ Po-218                                              ³ 3.70E-12  ³ 3.70E-12  ³ SLPFRN(1,2)
 Sf-Rn ³ Pb-214                                              ³ 6.20E-12  ³ 6.20E-12  ³ SLPFRN(1,3)
 Sf-Rn ³ Bi-214                                              ³ 1.50E-11  ³ 1.50E-11  ³ SLPFRN(1,4)
 Sf-Rn ³ Rn-220                                              ³ 1.90E-13  ³ 1.90E-13  ³ SLPFRN(2,1)
 Sf-Rn ³ Po-216                                              ³ 3.00E-15  ³ 3.00E-15  ³ SLPFRN(2,2)
 Sf-Rn ³ Pb-212                                              ³ 3.90E-11  ³ 3.90E-11  ³ SLPFRN(2,3)
 Sf-Rn ³ Bi-212                                              ³ 3.70E-11  ³ 3.70E-11  ³ SLPFRN(2,4)
       ³                                                     ³           ³           ³
 Sf-Rn ³ Radon K factors, (mrem/WLM):                        ³           ³           ³
 Sf-Rn ³ Rn-222 Indoor                                       ³ 7.60E+02  ³ 7.60E+02  ³ KFACTR(1,1)
 Sf-Rn ³ Rn-222 Outdoor                                      ³ 5.70E+02  ³ 5.70E+02  ³ KFACTR(1,2)
 Sf-Rn ³ Rn-220 Indoor                                       ³ 1.50E+02  ³ 1.50E+02  ³ KFACTR(2,1)
 Sf-Rn ³ Rn-220 Outdoor                                      ³ 2.50E+02  ³ 2.50E+02  ³ KFACTR(2,2)
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 *Base Case means Default.Lib w/o Associate Nuclide contributions.
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                     Risk Slope and Environmental Transport Factors for the Ground Pathway

0Nuclide  Slope(i)*                     ETFG(i,t) At Time in Years  (dimensionless)
```

(i)		t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Ac-227	3.480E-10	2.181E-01	2.181E-01	2.181E-01	2.181E-01	2.181E-01	2.181E-01	2.181E-01	2.181E-01
Ac-228	4.530E-06	2.147E-01	2.147E-01	2.147E-01	2.147E-01	2.147E-01	2.147E-01	2.147E-01	2.147E-01
At-218	3.570E-09	2.212E-01	2.212E-01	2.212E-01	2.212E-01	2.212E-01	2.212E-01	2.212E-01	2.212E-01
Bi-210	2.760E-09	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01
Bi-211	1.880E-07	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01	2.155E-01
Bi-212	8.870E-07	2.138E-01	2.138E-01	2.138E-01	2.138E-01	2.138E-01	2.138E-01	2.138E-01	2.138E-01
Bi-214	7.480E-06	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01
Fr-223	1.400E-07	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01
Pa-231	1.390E-07	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01
Pa-234	8.710E-06	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01
Pa-234m	6.870E-08	2.142E-01	2.142E-01	2.142E-01	2.142E-01	2.142E-01	2.142E-01	2.142E-01	2.142E-01
Pb-210	1.410E-09	2.237E-01	2.237E-01	2.237E-01	2.237E-01	2.237E-01	2.237E-01	2.237E-01	2.237E-01
Pb-211	2.290E-07	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01	2.143E-01
Pb-212	5.090E-07	2.169E-01	2.169E-01	2.169E-01	2.169E-01	2.169E-01	2.169E-01	2.169E-01	2.169E-01
Pb-214	9.820E-07	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01	2.156E-01
Po-210	3.950E-11	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01
Po-211	3.580E-08	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01
Po-212	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-214	3.860E-10	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01	2.134E-01
Po-215	7.480E-10	2.146E-01	2.146E-01	2.146E-01	2.146E-01	2.146E-01	2.146E-01	2.146E-01	2.146E-01
Po-216	7.870E-11	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01
Po-218	4.260E-11	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01	2.141E-01
Ra-223	4.340E-07	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01	2.165E-01
Ra-224	3.720E-08	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01	2.166E-01
Ra-226	2.290E-08	2.171E-01	2.171E-01	2.171E-01	2.171E-01	2.171E-01	2.171E-01	2.171E-01	2.171E-01
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rn-219	2.250E-07	2.157E-01	2.157E-01	2.157E-01	2.157E-01	2.157E-01	2.157E-01	2.157E-01	2.157E-01
Rn-220	1.700E-09	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01
Rn-222	1.740E-09	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01	2.136E-01
Th-227	3.780E-07	2.168E-01	2.168E-01	2.168E-01	2.168E-01	2.168E-01	2.168E-01	2.168E-01	2.168E-01
Th-228	5.590E-09	2.178E-01	2.178E-01	2.178E-01	2.178E-01	2.178E-01	2.178E-01	2.178E-01	2.178E-01
Th-230	8.190E-10	2.186E-01	2.186E-01	2.186E-01	2.186E-01	2.186E-01	2.186E-01	2.186E-01	2.186E-01
Th-231	2.450E-08	2.189E-01	2.189E-01	2.189E-01	2.189E-01	2.189E-01	2.189E-01	2.189E-01	2.189E-01
Th-232	3.420E-10	2.197E-01	2.197E-01	2.197E-01	2.197E-01	2.197E-01	2.197E-01	2.197E-01	2.197E-01
Th-234	1.630E-08	2.191E-01	2.191E-01	2.191E-01	2.191E-01	2.191E-01	2.191E-01	2.191E-01	2.191E-01
Tl-207	1.520E-08	2.144E-01	2.144E-01	2.144E-01	2.144E-01	2.144E-01	2.144E-01	2.144E-01	2.144E-01
Tl-208	1.760E-05	2.149E-01	2.149E-01	2.149E-01	2.149E-01	2.149E-01	2.149E-01	2.149E-01	2.149E-01
Tl-210	0.000E+00	2.280E-01	2.280E-01	2.280E-01	2.280E-01	2.280E-01	2.280E-01	2.280E-01	2.280E-01
U-234	2.520E-10	2.198E-01	2.198E-01	2.198E-01	2.198E-01	2.198E-01	2.198E-01	2.198E-01	2.198E-01
U-235	5.180E-07	2.170E-01	2.170E-01	2.170E-01	2.170E-01	2.170E-01	2.170E-01	2.170E-01	2.170E-01

U-238 4.990E-11 2.260E-01 2.260E-01 2.260E-01 2.260E-01 2.260E-01 2.260E-01 2.260E-01 2.260E-01
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* - Units are 1/yr per (pCi/g) at infinite depth and area. Multiplication by ETFG(i,t) converts to site conditions.

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Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 0.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Pa-231	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Pb-210	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Ra-226	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Ra-228	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Th-228	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Th-230	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Th-232	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
U-234	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
U-235	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
U-238	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 0.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	3.168E-07	0.0597	2.070E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.608E-08	0.0049
Pa-231	2.997E-08	0.0056	7.412E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.028E-09	0.0017
Pb-210	9.186E-10	0.0002	2.991E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.375E-07	0.0259
Ra-226	1.820E-06	0.3429	2.750E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.056E-08	0.0039
Ra-228	9.726E-07	0.1832	4.256E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.724E-08	0.0108
Th-228	1.669E-06	0.3143	1.401E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.687E-08	0.0032
Th-230	1.790E-10	0.0000	3.307E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.754E-09	0.0009

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 Th-232  7.514E-11 0.0000  4.212E-09 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.313E-09
0.0010
 U-234   5.540E-11 0.0000  2.704E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.815E-09
0.0007
 U-235   1.178E-07 0.0222  2.432E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.900E-09
0.0007
 U-238   2.442E-08 0.0046  2.299E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.818E-09
0.0009
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ÍÍÍÍÍÍ
 Total   4.952E-06 0.9328  6.708E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.899E-07
0.0546
0
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.636E-07
0.0685
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.641E-08
0.0087
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.414E-07
0.0266
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.844E-06
0.3473
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.034E-06
0.1948
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.700E-06
0.3201
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  8.240E-09
0.0016
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.600E-09
0.0018
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.574E-09
```

```
0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.241E-07
0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.154E-08
0.0059
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.309E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
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 Intrisk : TTLF Construction Worker - Re-baseline March 2010
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               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 0.000E+00 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                            and Fraction of Total Risk at t= 0.000E+00 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon             Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  3.118E-07 0.0587  2.038E-08 0.0038  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.567E-08 0.0048
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 Pa-231  3.496E-08 0.0066  7.738E-09 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.438E-09 0.0018
 Pb-210  9.044E-10 0.0002  2.945E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.354E-07 0.0255
 Ra-226  1.820E-06 0.3428  2.795E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.267E-08 0.0043
 Ra-228  1.174E-06 0.2212  6.176E-09 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.653E-08 0.0106
 Th-228  1.400E-06 0.2637  1.175E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.415E-08 0.0027
 Th-230  5.733E-10 0.0001  3.308E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.758E-09 0.0009
 Th-232  6.720E-08 0.0127  4.549E-09 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.737E-09 0.0016
 U-234   5.540E-11 0.0000  2.704E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.815E-09 0.0007
 U-235   1.178E-07 0.0222  2.432E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.900E-09 0.0007
 U-238   2.442E-08 0.0046  2.299E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.818E-09 0.0009
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   4.952E-06 0.9328  6.708E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.899E-07 0.0546
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page   8
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                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                        and Fraction of Total Risk at t= 0.000E+00 years

                                                  Water Dependent Pathways

              Water               Fish               Radon             Plant               Meat               Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.579E-07 0.0674
```

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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.213E-08 0.0098
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.393E-07 0.0262
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.845E-06 0.3476
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.237E-06 0.2330
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.426E-06 0.2686
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.639E-09 0.0016
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.048E-08 0.0152
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.574E-09 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.241E-07 0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.154E-08 0.0059
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.309E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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                                Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                              As pCi/yr at t= 1.000E+00 years

           Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat        Milk        Soil       Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    9.727E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.994E+01
 Pa-231    9.727E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
```

										0.000E+00	3.994E+01
Pb-210	9.726E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Ra-226	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Ra-228	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Th-228	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Th-230	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
Th-232	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.995E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.995E+01
U-234	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
U-235	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
U-238	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
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* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+00 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ÍÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Plant		Meat		Milk		Soil
Radio- Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	3.168E-07	0.0597	2.070E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.608E-08
Pa-231	2.997E-08	0.0056	7.412E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.027E-09
Pb-210	9.184E-10	0.0002	2.991E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.375E-07
Ra-226	1.820E-06	0.3429	2.750E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.056E-08
Ra-228	9.726E-07	0.1832	4.256E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.724E-08
Th-228	1.669E-06	0.3143	1.401E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.687E-08
Th-230	1.790E-10	0.0000	3.307E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.753E-09
Th-232	7.514E-11	0.0000	4.212E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.313E-09
U-234	5.540E-11	0.0000	2.704E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.815E-09
U-235	1.178E-07	0.0222	2.432E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.900E-09
U-238	2.442E-08	0.0046	2.298E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.818E-09
Total	4.952E-06	0.9328	6.708E-08	0.0126	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.899E-07

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.636E-07	0.0685
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.641E-08	0.0087
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.414E-07	0.0266
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.844E-06	0.3473
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.034E-06	0.1948
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.700E-06	0.3201
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.240E-09	0.0016
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.600E-09	0.0018
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.574E-09	0.0012
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.241E-07	0.0234
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.153E-08	0.0059
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.309E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Intrisk : TTLF Construction Worker - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+00 years

0

Radon Pathway	Radionuclides							
	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  3.021E-07 0.0569  1.974E-08 0.0037  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.487E-08 0.0047
 Pa-231  4.473E-08 0.0084  8.376E-09 0.0016  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.024E-08 0.0019
 Pb-210  8.766E-10 0.0002  2.855E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.312E-07 0.0247
 Ra-226  1.819E-06 0.3427  2.884E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.681E-08 0.0050
 Ra-228  1.440E-06 0.2713  8.827E-09 0.0017  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.415E-08 0.0102
 Th-228  9.744E-07 0.1835  8.180E-09 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.852E-09 0.0019
 Th-230  1.362E-09 0.0003  3.309E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.769E-09 0.0009
 Th-232  2.267E-07 0.0427  5.469E-09 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.542E-08 0.0029
 U-234   5.541E-11 0.0000  2.704E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.815E-09 0.0007
 U-235   1.178E-07 0.0222  2.432E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.900E-09 0.0007
 U-238   2.442E-08 0.0046  2.298E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.818E-09 0.0009
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 Total   4.952E-06 0.9328  6.708E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.899E-07 0.0546
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  12
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+00 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.467E-07 0.0653
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.334E-08 0.0119
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.350E-07 0.0254
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.849E-06 0.3483
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.503E-06 0.2832
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.924E-07 0.1869
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.439E-09 0.0018
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.475E-07 0.0466
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.574E-09 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.241E-07 0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.153E-08 0.0059
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Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 5.309E-06 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	9.726E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Pa-231	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Pb-210	9.724E-02	0.000E+00	0.000E+00	0.000E+00	3.993E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.993E+01
Ra-226	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Ra-228	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Th-228	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Th-230	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Th-232	9.727E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
U-234	9.726E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
U-235	9.726E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
U-238	9.726E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Construction Worker - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	3.168E-07	0.0597	2.070E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.608E-08	0.0049
Pa-231	2.996E-08	0.0056	7.412E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.027E-09	0.0017
Pb-210	9.182E-10	0.0002	2.990E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.375E-07	0.0259
Ra-226	1.820E-06	0.3429	2.750E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.056E-08	0.0039
Ra-228	9.725E-07	0.1832	4.255E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.724E-08	0.0108
Th-228	1.669E-06	0.3143	1.401E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.687E-08	0.0032
Th-230	1.790E-10	0.0000	3.307E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.753E-09	0.0009

```
 Th-232  7.514E-11 0.0000  4.212E-09 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.313E-09
0.0010
 U-234   5.539E-11 0.0000  2.704E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.814E-09
0.0007
 U-235   1.178E-07 0.0222  2.432E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.900E-09
0.0007
 U-238   2.442E-08 0.0046  2.298E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.817E-09
0.0009
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 Total   4.952E-06 0.9328  6.707E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.899E-07
0.0546
0
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+00 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.636E-07
0.0685
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.640E-08
0.0087
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.414E-07
0.0266
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.844E-06
0.3473
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.034E-06
0.1948
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.700E-06
0.3201
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  8.240E-09
0.0016
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.599E-09
0.0018
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.573E-09
```

```
0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.241E-07
0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.153E-08
0.0059
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.309E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days       03/30/2011  09:25  Page  15
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+00 years
0                                                Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 3.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  2.834E-07 0.0534  1.852E-08 0.0035  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.333E-08 0.0044
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 Pa-231  6.335E-08 0.0119  9.593E-09 0.0018  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.178E-08 0.0022
 Pb-210  8.236E-10 0.0002  2.682E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.233E-07 0.0232
 Ra-226  1.818E-06 0.3424  3.054E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.469E-08 0.0065
 Ra-228  1.572E-06 0.2961  1.063E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.700E-08 0.0089
 Th-228  4.721E-07 0.0889  3.963E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.773E-09 0.0009
 Th-230  2.937E-09 0.0006  3.311E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.795E-09 0.0009
 Th-232  5.976E-07 0.1126  7.884E-09 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.765E-08 0.0052
 U-234   5.544E-11 0.0000  2.704E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.814E-09 0.0007
 U-235   1.178E-07 0.0222  2.432E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.901E-09 0.0007
 U-238   2.442E-08 0.0046  2.298E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.817E-09 0.0009
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 Total   4.952E-06 0.9328  6.707E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.899E-07 0.0546
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  16
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                        and Fraction of Total Risk at t= 3.000E+00 years

                                                  Water Dependent Pathways

              Water               Fish               Radon             Plant               Meat               Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.253E-07 0.0613
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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.472E-08 0.0160
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.268E-07 0.0239
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.855E-06 0.3495
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.629E-06 0.3069
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.808E-07 0.0906
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.104E-08 0.0021
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.331E-07 0.1193
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.574E-09 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.241E-07 0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.153E-08 0.0059
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.309E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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 Intrisk : TTLF Construction Worker - Re-baseline March 2010
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                        Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                              As pCi/yr at t= 1.000E+01 years

           Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    9.725E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.994E+01
 Pa-231    9.725E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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0.000E+00  3.994E+01
 Pb-210    9.717E-02  0.000E+00  0.000E+00  0.000E+00  3.991E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.991E+01
 Ra-226    9.727E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.994E+01
 Ra-228    9.726E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.994E+01
 Th-228    9.726E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.994E+01
 Th-230    9.726E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.994E+01
 Th-232    9.726E-02  0.000E+00  0.000E+00  0.000E+00  3.994E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.994E+01
 U-234     9.723E-02  0.000E+00  0.000E+00  0.000E+00  3.993E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.993E+01
 U-235     9.723E-02  0.000E+00  0.000E+00  0.000E+00  3.993E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.993E+01
 U-238     9.723E-02  0.000E+00  0.000E+00  0.000E+00  3.993E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.993E+01
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 1.000E+01 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days       03/30/2011  09:25  Page  18
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                    Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                   and Fraction of Total Risk at t= 1.000E+01 years
```

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	3.168E-07	0.0597	2.070E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.608E-08
Pa-231	2.996E-08	0.0056	7.410E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.025E-09
Pb-210	9.176E-10	0.0002	2.988E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.374E-07
Ra-226	1.820E-06	0.3429	2.750E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.056E-08
Ra-228	9.725E-07	0.1832	4.255E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.723E-08
Th-228	1.669E-06	0.3143	1.401E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.687E-08
Th-230	1.790E-10	0.0000	3.307E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.753E-09
Th-232	7.513E-11	0.0000	4.211E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.312E-09
U-234	5.538E-11	0.0000	2.703E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.813E-09
U-235	1.177E-07	0.0222	2.431E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.899E-09
U-238	2.441E-08	0.0046	2.298E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.816E-09
Total	4.951E-06	0.9328	6.706E-08	0.0126	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.897E-07

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.635E-07	0.0685
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.640E-08	0.0087
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.413E-07	0.0266
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.843E-06	0.3473
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.034E-06	0.1948
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.699E-06	0.3202
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.239E-09	0.0016
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.599E-09	0.0018
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.572E-09	0.0012
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.241E-07	0.0234
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.152E-08	0.0059
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.308E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+01 years

0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

(Radionuclides)

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  2.268E-07 0.0427  1.482E-08 0.0028  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.867E-08 0.0035
 Pa-231  1.199E-07 0.0226  1.329E-08 0.0025  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.643E-08 0.0031
 Pb-210  6.620E-10 0.0001  2.156E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.912E-08 0.0187
 Ra-226  1.812E-06 0.3414  3.568E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.865E-08 0.0110
 Ra-228  9.241E-07 0.1741  6.655E-09 0.0013  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.272E-08 0.0043
 Th-228  3.737E-08 0.0070  3.137E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.778E-10 0.0001
 Th-230  8.440E-09 0.0016  3.321E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.938E-09 0.0009
 Th-232  1.680E-06 0.3164  1.551E-08 0.0029  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.632E-08 0.0106
 U-234   5.578E-11 0.0000  2.703E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.814E-09 0.0007
 U-235   1.178E-07 0.0222  2.433E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.902E-09 0.0007
 U-238   2.441E-08 0.0046  2.298E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.816E-09 0.0009
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 Total   4.951E-06 0.9328  6.706E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.897E-07 0.0546
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  20
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+01 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.602E-07 0.0490
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.497E-07 0.0282
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.019E-07 0.0192
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.874E-06 0.3531
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.535E-07 0.1796
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.806E-08 0.0072
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.670E-08 0.0031
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.751E-06 0.3300
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.573E-09 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.241E-07 0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.152E-08 0.0059
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.308E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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                       Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                            As pCi/yr at t= 3.000E+01 years
```

Radio- Nuclide	Water Independent Pathways (Inhalation w/o radon): Inhalation	Plant	Meat	Milk	Soil	Water Dependent Pathways: Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	9.720E-02	0.000E+00	0.000E+00	0.000E+00	3.991E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.991E+01
Pa-231	9.720E-02	0.000E+00	0.000E+00	0.000E+00	3.992E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.992E+01
Pb-210	9.704E-02	0.000E+00	0.000E+00	0.000E+00	3.985E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.985E+01
Ra-226	9.725E-02	0.000E+00	0.000E+00	0.000E+00	3.994E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.994E+01
Ra-228	9.724E-02	0.000E+00	0.000E+00	0.000E+00	3.993E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.993E+01
Th-228	9.724E-02	0.000E+00	0.000E+00	0.000E+00	3.993E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.993E+01
Th-230	9.724E-02	0.000E+00	0.000E+00	0.000E+00	3.993E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.993E+01
Th-232	9.724E-02	0.000E+00	0.000E+00	0.000E+00	3.993E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.993E+01
U-234	9.716E-02	0.000E+00	0.000E+00	0.000E+00	3.990E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.990E+01
U-235	9.716E-02	0.000E+00	0.000E+00	0.000E+00	3.990E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.990E+01
U-238	9.716E-02	0.000E+00	0.000E+00	0.000E+00	3.990E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.990E+01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways
0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+01 years
0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years
0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	3.166E-07	0.0597	2.069E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.606E-08	0.0049
Pa-231	2.995E-08	0.0056	7.407E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.021E-09	0.0017
Pb-210	9.164E-10	0.0002	2.985E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.372E-07	0.0259
Ra-226	1.820E-06	0.3429	2.749E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.056E-08	0.0039
Ra-228	9.723E-07	0.1832	4.254E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.722E-08	0.0108
Th-228	1.668E-06	0.3144	1.401E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.687E-08	0.0032
Th-230	1.790E-10	0.0000	3.306E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.752E-09	0.0009

```
 Th-232  7.512E-11 0.0000  4.210E-09 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.311E-09
0.0010
 U-234   5.533E-11 0.0000  2.701E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.810E-09
0.0007
 U-235   1.176E-07 0.0222  2.429E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.896E-09
0.0007
 U-238   2.439E-08 0.0046  2.296E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.812E-09
0.0009
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 Total   4.950E-06 0.9328  6.703E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.895E-07
0.0546
0
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.633E-07
0.0685
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.637E-08
0.0087
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.411E-07
0.0266
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.843E-06
0.3473
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.034E-06
0.1948
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.699E-06
0.3202
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  8.237E-09
0.0016
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.597E-09
0.0018
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.566E-09
```

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0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.240E-07
0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.150E-08
0.0059
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.307E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  23
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+01 years
0                                                    Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                    and Fraction of Total Risk at t= 3.000E+01 years
0                                                 Water Independent Pathways (Inhalation excludes radon)
0              Ground          Inhalation           Radon            Plant               Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.199E-07 0.0226  7.835E-09 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.870E-09 0.0019
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 Pa-231  2.265E-07 0.0427  2.025E-08 0.0038  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.520E-08 0.0047
 Pb-210  3.547E-10 0.0001  1.155E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.311E-08 0.0100
 Ra-226  1.797E-06 0.3385  4.529E-09 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.037E-07 0.0196
 Ra-228  8.789E-08 0.0166  6.389E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.089E-09 0.0004
 Th-228  2.663E-11 0.0000  2.236E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.693E-13 0.0000
 Th-230  2.407E-08 0.0045  3.355E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.660E-09 0.0011
 Th-232  2.553E-06 0.4810  2.183E-08 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.731E-08 0.0146
 U-234   5.866E-11 0.0000  2.702E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.811E-09 0.0007
 U-235   1.177E-07 0.0222  2.439E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.907E-09 0.0007
 U-238   2.439E-08 0.0046  2.296E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.812E-09 0.0009
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 Total   4.950E-06 0.9328  6.703E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.895E-07 0.0546
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  24
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                        and Fraction of Total Risk at t= 3.000E+01 years

                                                  Water Dependent Pathways

              Water               Fish               Radon             Plant               Meat               Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.376E-07 0.0259
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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.720E-07 0.0513
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.462E-08 0.0103
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.905E-06 0.3590
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.062E-08 0.0171
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.712E-11 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.308E-08 0.0062
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.652E-06 0.4997
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.571E-09 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.241E-07 0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.150E-08 0.0059
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.307E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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 Intrisk : TTLF Construction Worker - Re-baseline March 2010
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                                Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                              As pCi/yr at t= 1.000E+02 years

           Water Independent Pathways (Inhalation w/o radon)                      Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    9.703E-02  0.000E+00  0.000E+00  0.000E+00  3.985E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.985E+01
 Pa-231    9.704E-02  0.000E+00  0.000E+00  0.000E+00  3.985E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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0.000E+00  3.985E+01
 Pb-210    9.688E-02  0.000E+00  0.000E+00  0.000E+00  3.978E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.978E+01
 Ra-226    9.720E-02  0.000E+00  0.000E+00  0.000E+00  3.992E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.992E+01
 Ra-228    9.717E-02  0.000E+00  0.000E+00  0.000E+00  3.990E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.990E+01
 Th-228    9.717E-02  0.000E+00  0.000E+00  0.000E+00  3.990E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.990E+01
 Th-230    9.717E-02  0.000E+00  0.000E+00  0.000E+00  3.990E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.990E+01
 Th-232    9.717E-02  0.000E+00  0.000E+00  0.000E+00  3.990E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.990E+01
 U-234     9.688E-02  0.000E+00  0.000E+00  0.000E+00  3.979E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.979E+01
 U-235     9.688E-02  0.000E+00  0.000E+00  0.000E+00  3.979E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.979E+01
 U-238     9.688E-02  0.000E+00  0.000E+00  0.000E+00  3.979E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.979E+01
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 1.000E+02 years
0                                                          Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days       03/30/2011  09:25  Page  26
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                    Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     and Fraction of Total Risk at t= 1.000E+02 years
```

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	3.161E-07	0.0596	2.065E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.602E-08
Pa-231	2.990E-08	0.0056	7.394E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.006E-09
Pb-210	9.149E-10	0.0002	2.979E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.370E-07
Ra-226	1.819E-06	0.3431	2.748E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.055E-08
Ra-228	9.715E-07	0.1832	4.251E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.718E-08
Th-228	1.667E-06	0.3144	1.399E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.685E-08
Th-230	1.788E-10	0.0000	3.304E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.748E-09
Th-232	7.506E-11	0.0000	4.207E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.307E-09
U-234	5.518E-11	0.0000	2.693E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.799E-09
U-235	1.173E-07	0.0221	2.422E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.885E-09
U-238	2.432E-08	0.0046	2.289E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.799E-09
Total	4.946E-06	0.9328	6.694E-08	0.0126	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.891E-07

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+02 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.627E-07	0.0684
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.630E-08	0.0087
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.409E-07	0.0266
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.842E-06	0.3475
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.033E-06	0.1948
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.698E-06	0.3202
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.231E-09	0.0016
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.589E-09	0.0018
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.548E-09	0.0012
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.236E-07	0.0233
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.141E-08	0.0059
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Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.302E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Intrisk : TTLF Construction Worker - Re-baseline March 2010
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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 Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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 Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

 Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                         and Fraction of Total Risk at t= 1.000E+02 years
0                                      Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  1.289E-08 0.0024  8.422E-10 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.061E-09 0.0002
 Pa-231  3.325E-07 0.0627  2.716E-08 0.0051  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.391E-08 0.0064
 Pb-210  3.994E-11 0.0000  1.301E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.980E-09 0.0011
 Ra-226  1.742E-06 0.3286  5.392E-09 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.466E-07 0.0276
 Ra-228  1.902E-11 0.0000  1.383E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.519E-13 0.0000
 Th-228  2.573E-22 0.0000  2.160E-24 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.601E-24 0.0000
 Th-230  7.765E-08 0.0146  3.506E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.689E-09 0.0018
 Th-232  2.638E-06 0.4976  2.245E-08 0.0042  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.934E-08 0.0150
 U-234   9.059E-11 0.0000  2.696E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.805E-09 0.0007
 U-235   1.179E-07 0.0222  2.469E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.942E-09 0.0007
 U-238   2.432E-08 0.0046  2.290E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.800E-09 0.0009
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 Total   4.946E-06 0.9328  6.694E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.891E-07 0.0545
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  28
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+02 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.479E-08 0.0028
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.936E-07 0.0742
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.150E-09 0.0012
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.894E-06 0.3573
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.961E-11 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.620E-22 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.085E-08 0.0171
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.740E-06 0.5168
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.591E-09 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.243E-07 0.0234
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.141E-08 0.0059
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Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 5.302E-06 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	9.657E-02	0.000E+00	0.000E+00	0.000E+00	3.966E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.966E+01
Pa-231	9.658E-02	0.000E+00	0.000E+00	0.000E+00	3.966E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.966E+01
Pb-210	9.672E-02	0.000E+00	0.000E+00	0.000E+00	3.972E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.972E+01
Ra-226	9.706E-02	0.000E+00	0.000E+00	0.000E+00	3.986E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.986E+01
Ra-228	9.695E-02	0.000E+00	0.000E+00	0.000E+00	3.981E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.981E+01
Th-228	9.695E-02	0.000E+00	0.000E+00	0.000E+00	3.981E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.981E+01
Th-230	9.695E-02	0.000E+00	0.000E+00	0.000E+00	3.981E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.981E+01
Th-232	9.695E-02	0.000E+00	0.000E+00	0.000E+00	3.981E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.981E+01
U-234	9.611E-02	0.000E+00	0.000E+00	0.000E+00	3.947E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.947E+01
U-235	9.611E-02	0.000E+00	0.000E+00	0.000E+00	3.947E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.947E+01
U-238	9.611E-02	0.000E+00	0.000E+00	0.000E+00	3.947E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.947E+01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil

and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Construction Worker - Re-baseline March 2010

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	3.146E-07	0.0595	2.056E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.589E-08	0.0049
Pa-231	2.975E-08	0.0056	7.359E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.963E-09	0.0017
Pb-210	9.134E-10	0.0002	2.975E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.368E-07	0.0259
Ra-226	1.816E-06	0.3433	2.744E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.052E-08	0.0039
Ra-228	9.694E-07	0.1832	4.242E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.705E-08	0.0108
Th-228	1.663E-06	0.3144	1.396E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.682E-08	0.0032
Th-230	1.784E-10	0.0000	3.296E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.738E-09	0.0009

```
 Th-232  7.489E-11 0.0000  4.198E-09 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.295E-09
0.0010
 U-234   5.474E-11 0.0000  2.672E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.769E-09
0.0007
 U-235   1.164E-07 0.0220  2.403E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.854E-09
0.0007
 U-238   2.413E-08 0.0046  2.271E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.760E-09
0.0009
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 Total   4.935E-06 0.9329  6.668E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.884E-07
0.0545
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

Water Dependent Pathways

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              Water               Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.610E-07
0.0682
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.608E-08
0.0087
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.406E-07
0.0266
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.840E-06
0.3477
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.031E-06
0.1948
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.694E-06
0.3202
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  8.212E-09
0.0016
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.568E-09
0.0018
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.496E-09
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0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.226E-07
0.0232
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.116E-08
0.0059
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.290E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  31
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 3.000E+02 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                                  and Fraction of Total Risk at t= 3.000E+02 years
0                                               Water Independent Pathways (Inhalation excludes radon)
0              Ground           Inhalation          Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.    risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  2.201E-11 0.0000  1.439E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.812E-12 0.0000
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 Pa-231  3.423E-07 0.0647  2.775E-08 0.0052  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.465E-08 0.0066
 Pb-210  7.789E-14 0.0000  2.537E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.166E-11 0.0000
 Ra-226  1.596E-06 0.3016  5.057E-09 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.398E-07 0.0264
 Ra-228  6.427E-22 0.0000  4.672E-24 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.527E-23 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.216E-07 0.0419  3.947E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.220E-08 0.0042
 Th-232  2.633E-06 0.4977  2.240E-08 0.0042  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.916E-08 0.0150
 U-234   3.602E-10 0.0001  2.679E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.801E-09 0.0007
 U-235   1.184E-07 0.0224  2.566E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.057E-09 0.0008
 U-238   2.413E-08 0.0046  2.273E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.763E-09 0.0009
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 Total   4.935E-06 0.9329  6.668E-08 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.884E-07 0.0545
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  32
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 3.000E+02 years

                                                   Water Dependent Pathways

              Water               Fish               Radon             Plant               Meat               Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.527E-11 0.0000
```

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 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.047E-07 0.0765
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.199E-11 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.740E-06 0.3290
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.626E-22 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.477E-07 0.0468
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.734E-06 0.5169
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.840E-09 0.0013
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.250E-07 0.0236
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.116E-08 0.0059
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.290E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  33
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                       Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                                          As pCi/yr at t= 1.000E+03 years

           Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    9.497E-02  0.000E+00  0.000E+00  0.000E+00  3.900E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.900E+01
 Pa-231    9.498E-02  0.000E+00  0.000E+00  0.000E+00  3.900E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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0.000E+00  3.900E+01
 Pb-210    9.618E-02  0.000E+00  0.000E+00  0.000E+00  3.950E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.950E+01
 Ra-226    9.652E-02  0.000E+00  0.000E+00  0.000E+00  3.963E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.963E+01
 Ra-228    9.621E-02  0.000E+00  0.000E+00  0.000E+00  3.951E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.951E+01
 Th-228    9.621E-02  0.000E+00  0.000E+00  0.000E+00  3.951E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.951E+01
 Th-230    9.619E-02  0.000E+00  0.000E+00  0.000E+00  3.950E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.950E+01
 Th-232    9.620E-02  0.000E+00  0.000E+00  0.000E+00  3.951E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.951E+01
 U-234     9.346E-02  0.000E+00  0.000E+00  0.000E+00  3.838E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.838E+01
 U-235     9.346E-02  0.000E+00  0.000E+00  0.000E+00  3.838E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.838E+01
 U-238     9.346E-02  0.000E+00  0.000E+00  0.000E+00  3.838E+01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
0.000E+00  3.838E+01
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 1.000E+03 years
0                                                      Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  34
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                           Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                            and Fraction of Total Risk at t= 1.000E+03 years
```

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	3.093E-07	0.0590	2.021E-08	0.0039	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.546E-08
Pa-231	2.926E-08	0.0056	7.237E-09	0.0014	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.814E-09
Pb-210	9.083E-10	0.0002	2.958E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.360E-07
Ra-226	1.806E-06	0.3443	2.729E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.040E-08
Ra-228	9.619E-07	0.1833	4.209E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.661E-08
Th-228	1.650E-06	0.3146	1.386E-08	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.669E-08
Th-230	1.770E-10	0.0000	3.270E-09	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.701E-09
Th-232	7.431E-11	0.0000	4.166E-09	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.254E-09
U-234	5.323E-11	0.0000	2.598E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.665E-09
U-235	1.132E-07	0.0216	2.336E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.747E-09
U-238	2.346E-08	0.0045	2.208E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.629E-09
Total	4.895E-06	0.9330	6.578E-08	0.0125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.860E-07

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

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Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.550E-07	0.0677
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.531E-08	0.0086
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.399E-07	0.0267
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.829E-06	0.3487
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.023E-06	0.1949
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.681E-06	0.3204
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.148E-09	0.0016
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.494E-09	0.0018
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.316E-09	0.0012
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.193E-07	0.0227
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.030E-08	0.0058
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.246E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 03/30/2011 09:25 Page 35
Intrisk : TTLF Construction Worker - Re-baseline March 2010
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+03 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  4.534E-21 0.0000  2.963E-22 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.733E-22 0.0000
 Pa-231  3.318E-07 0.0632  2.689E-08 0.0051  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.358E-08 0.0064
 Pb-210  2.551E-23 0.0000  8.308E-23 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.819E-21 0.0000
 Ra-226  1.172E-06 0.2235  3.716E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.027E-07 0.0196
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  6.318E-07 0.1204  5.203E-09 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.810E-08 0.0111
 Th-232  2.612E-06 0.4979  2.223E-08 0.0042  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.855E-08 0.0150
 U-234   3.074E-09 0.0006  2.629E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.944E-09 0.0008
 U-235   1.200E-07 0.0229  2.894E-09 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.443E-09 0.0008
 U-238   2.346E-08 0.0045  2.216E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.639E-09 0.0009
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 Total   4.895E-06 0.9330  6.578E-08 0.0125  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.860E-07 0.0545
1RESRAD, Version 6.5      T« Limit = 180 days        03/30/2011  09:25  Page  36
 Intrisk : TTLF Construction Worker - Re-baseline March 2010
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\TTLFCONSTRUCTION.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and Pathways
(p)
                                          and Fraction of Total Risk at t= 1.000E+03 years

                                                   Water Dependent Pathways

             Water              Fish              Radon             Plant              Meat              Milk
    All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.204E-21 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.922E-07 0.0748
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.928E-21 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.279E-06 0.2437
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.951E-07 0.1325
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.713E-06 0.5171
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.647E-09 0.0018
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.273E-07 0.0243
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.032E-08 0.0058
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.246E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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Appendix G-7
RESRAD Risk Output for Trespasser Youth Future Baseline

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1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 1
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

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Part III: Intake Quantities and Health Risk Factors

Cancer Risk Slope Factors 2
Risk Slope and ETFG for the Ground Pathway 4
Amount of Intake Quantities and Excess Cancer Risks
Time= 0.000E+00 5
Time= 1.000E+00 9
Time= 1.000E+01 13
Time= 3.000E+01 17
Time= 1.000E+02 21
Time= 3.000E+02 25
Time= 6.000E+02 29
Time= 7.500E+02 33
Time= 1.000E+03 37
Time= 2.300E+03 41

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 2
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Cancer Risk Slope Factors Summary Table
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-1	Ground external radiation slope factors, 1/yr per (pCi/g):			
Sf-1	Ac-227+D	1.47E-06	3.48E-10	SLPF(1,1)
Sf-1	Pa-231	1.39E-07	1.39E-07	SLPF(2,1)
Sf-1	Pb-210+D	4.21E-09	1.41E-09	SLPF(3,1)
Sf-1	Ra-226+D	8.49E-06	2.29E-08	SLPF(4,1)
Sf-1	Ra-228+D	4.53E-06	0.00E+00	SLPF(5,1)
Sf-1	Th-228+D	7.76E-06	5.59E-09	SLPF(6,1)
Sf-1	Th-230	8.19E-10	8.19E-10	SLPF(7,1)
Sf-1	Th-232	3.42E-10	3.42E-10	SLPF(8,1)
Sf-1	U-234	2.52E-10	2.52E-10	SLPF(9,1)
Sf-1	U-235+D	5.43E-07	5.18E-07	SLPF(10,1)
Sf-1	U-238	4.99E-11	4.99E-11	SLPF(11,1)
Sf-1	U-238+D	1.14E-07	4.99E-11	SLPF(12,1)
Sf-2	Inhalation, slope factors, 1/(pCi):			
Sf-2	Ac-227+D	2.13E-07	1.49E-07	SLPF(1,2)
Sf-2	Pa-231	7.62E-08	7.62E-08	SLPF(2,2)

Sf-2	Pb-210+D	3.08E-08	1.58E-08	SLPF(3,2)
Sf-2	Ra-226+D	2.83E-08	2.82E-08	SLPF(4,2)
Sf-2	Ra-228+D	4.37E-08	4.37E-08	SLPF(5,2)
Sf-2	Th-228+D	1.44E-07	1.32E-07	SLPF(6,2)
Sf-2	Th-230	3.40E-08	3.40E-08	SLPF(7,2)
Sf-2	Th-232	4.33E-08	4.33E-08	SLPF(8,2)
Sf-2	U-234	2.78E-08	2.78E-08	SLPF(9,2)
Sf-2	U-235+D	2.50E-08	2.50E-08	SLPF(10,2)
Sf-2	U-238	2.36E-08	2.36E-08	SLPF(11,2)
Sf-2	U-238+D	2.36E-08	2.36E-08	SLPF(12,2)
Sf-3	Food ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	6.53E-10	2.45E-10	SLPF(1,3)
Sf-3	Pa-231	2.26E-10	2.26E-10	SLPF(2,3)
Sf-3	Pb-210+D	3.44E-09	1.18E-09	SLPF(3,3)
Sf-3	Ra-226+D	5.15E-10	5.14E-10	SLPF(4,3)
Sf-3	Ra-228+D	1.43E-09	1.43E-09	SLPF(5,3)
Sf-3	Th-228+D	4.22E-10	1.48E-10	SLPF(6,3)
Sf-3	Th-230	1.19E-10	1.19E-10	SLPF(7,3)
Sf-3	Th-232	1.33E-10	1.33E-10	SLPF(8,3)
Sf-3	U-234	9.55E-11	9.55E-11	SLPF(9,3)
Sf-3	U-235+D	9.76E-11	9.44E-11	SLPF(10,3)
Sf-3	U-238	8.66E-11	8.66E-11	SLPF(11,3)
Sf-3	U-238+D	1.21E-10	8.66E-11	SLPF(12,3)
Sf-3	Water ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	4.86E-10	2.01E-10	SLPF(1,4)
Sf-3	Pa-231	1.73E-10	1.73E-10	SLPF(2,4)
Sf-3	Pb-210+D	2.66E-09	8.81E-10	SLPF(3,4)
Sf-3	Ra-226+D	3.86E-10	3.85E-10	SLPF(4,4)
Sf-3	Ra-228+D	1.04E-09	1.04E-09	SLPF(5,4)
Sf-3	Th-228+D	2.99E-10	1.07E-10	SLPF(6,4)
Sf-3	Th-230	9.10E-11	9.10E-11	SLPF(7,4)

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 3
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Cancer Risk Slope Factors Summary Table (continued)
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-3	Th-232	1.01E-10	1.01E-10	SLPF(8,4)
Sf-3	U-234	7.07E-11	7.07E-11	SLPF(9,4)
Sf-3	U-235+D	7.18E-11	6.96E-11	SLPF(10,4)
Sf-3	U-238	6.40E-11	6.40E-11	SLPF(11,4)
Sf-3	U-238+D	8.71E-11	6.40E-11	SLPF(12,4)

Sf-3	Soil ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	6.53E-10	2.45E-10	SLPF(1,5)
Sf-3	Pa-231	2.26E-10	2.26E-10	SLPF(2,5)
Sf-3	Pb-210+D	3.44E-09	1.18E-09	SLPF(3,5)
Sf-3	Ra-226+D	5.15E-10	5.14E-10	SLPF(4,5)
Sf-3	Ra-228+D	1.43E-09	1.43E-09	SLPF(5,5)
Sf-3	Th-228+D	4.22E-10	1.48E-10	SLPF(6,5)
Sf-3	Th-230	1.19E-10	1.19E-10	SLPF(7,5)
Sf-3	Th-232	1.33E-10	1.33E-10	SLPF(8,5)
Sf-3	U-234	9.55E-11	9.55E-11	SLPF(9,5)
Sf-3	U-235+D	9.76E-11	9.44E-11	SLPF(10,5)
Sf-3	U-238	8.66E-11	8.66E-11	SLPF(11,5)
Sf-3	U-238+D	1.21E-10	8.66E-11	SLPF(12,5)
Sf-Rn	Radon Inhalation slope factors, 1/(pCi):			
Sf-Rn	Rn-222	1.80E-12	1.80E-12	SLPFRN(1,1)
Sf-Rn	Po-218	3.70E-12	3.70E-12	SLPFRN(1,2)
Sf-Rn	Pb-214	6.20E-12	6.20E-12	SLPFRN(1,3)
Sf-Rn	Bi-214	1.50E-11	1.50E-11	SLPFRN(1,4)
Sf-Rn	Rn-220	1.90E-13	1.90E-13	SLPFRN(2,1)
Sf-Rn	Po-216	3.00E-15	3.00E-15	SLPFRN(2,2)
Sf-Rn	Pb-212	3.90E-11	3.90E-11	SLPFRN(2,3)
Sf-Rn	Bi-212	3.70E-11	3.70E-11	SLPFRN(2,4)
Sf-Rn	Radon K factors, (mrem/WLM):			
Sf-Rn	Rn-222 Indoor	7.60E+02	7.60E+02	KFACTR(1,1)
Sf-Rn	Rn-222 Outdoor	5.70E+02	5.70E+02	KFACTR(1,2)
Sf-Rn	Rn-220 Indoor	1.50E+02	1.50E+02	KFACTR(2,1)
Sf-Rn	Rn-220 Outdoor	2.50E+02	2.50E+02	KFACTR(2,2)

*Base Case means Default.Lib w/o Associate Nuclide contributions.

1RESRAD, Version 6.5   T« Limit = 180 days   05/05/2011 11:25 Page   4
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Risk Slope and Environmental Transport Factors for the Ground Pathway

0Nuclide (i)	Slope(i)*	ETFG(i,t) At Time in Years (dimensionless) t= 0.000E+00	1.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	6.000E+02	7.500E+02	1.000E+03	2.300E+03
Ac-227	3.480E-10	3.919E-08	4.014E-08	4.981E-08	8.050E-08	4.319E-07	5.249E-05	7.367E-02	7.367E-02	7.367E-02	7.437E-02
Ac-228	4.530E-06	3.993E-05	4.044E-05	4.523E-05	5.802E-05	1.387E-04	1.673E-03	7.251E-02	7.251E-02	7.251E-02	7.224E-02
At-218	3.570E-09	1.977E-16	2.090E-16	3.449E-16	1.050E-15	5.163E-14	3.520E-09	7.471E-02	7.471E-02		

										7.471E-02	7.471E-02
Bi-210	2.760E-09	4.232E-07	4.317E-07	5.166E-07	7.699E-07	3.111E-06	1.682E-04	7.276E-02	7.276E-02	7.276E-02	7.398E-02
Bi-211	1.880E-07	2.755E-06	2.802E-06	3.263E-06	4.580E-06	1.500E-05	4.451E-04	7.279E-02	7.279E-02	7.279E-02	7.367E-02
Bi-212	8.870E-07	3.105E-05	3.146E-05	3.533E-05	4.573E-05	1.128E-04	1.489E-03	7.220E-02	7.220E-02	7.220E-02	7.227E-02
Bi-214	7.480E-06	8.231E-05	8.325E-05	9.212E-05	1.154E-04	2.535E-04	2.406E-03	7.238E-02	7.238E-02	7.238E-02	7.141E-02
Fr-223	1.400E-07	4.193E-07	4.277E-07	5.118E-07	7.628E-07	3.082E-06	1.666E-04	7.316E-02	7.316E-02	7.316E-02	7.400E-02
Pa-231	1.390E-07	2.094E-06	2.131E-06	2.492E-06	3.529E-06	1.193E-05	3.872E-04	7.281E-02	7.281E-02	7.281E-02	7.375E-02
Pa-234	8.710E-06	2.560E-05	2.594E-05	2.922E-05	3.804E-05	9.584E-05	1.343E-03	7.238E-02	7.238E-02	7.238E-02	7.253E-02
Pa-234m	6.870E-08	1.957E-05	1.984E-05	2.243E-05	2.947E-05	7.662E-05	1.175E-03	7.232E-02	7.232E-02	7.232E-02	7.269E-02
Pb-210	1.410E-09	3.327E-21	3.583E-21	6.970E-21	3.059E-20	5.416E-18	1.435E-11	7.556E-02	7.556E-02	7.556E-02	7.556E-02
Pb-211	2.290E-07	1.261E-05	1.280E-05	1.457E-05	1.943E-05	5.323E-05	9.483E-04	7.237E-02	7.237E-02	7.237E-02	7.295E-02
Pb-212	5.090E-07	5.411E-07	5.518E-07	6.585E-07	9.756E-07	3.860E-06	1.965E-04	7.326E-02	7.326E-02	7.326E-02	7.407E-02
Pb-214	9.820E-07	3.252E-06	3.307E-06	3.841E-06	5.359E-06	1.719E-05	4.802E-04	7.281E-02	7.281E-02	7.281E-02	7.367E-02
Po-210	3.950E-11	2.167E-05	2.196E-05	2.480E-05	3.248E-05	8.358E-05	1.244E-03	7.230E-02	7.230E-02	7.230E-02	7.261E-02
Po-211	3.580E-08	2.155E-05	2.184E-05	2.466E-05	3.231E-05	8.313E-05	1.237E-03	7.207E-02	7.207E-02	7.207E-02	7.248E-02
Po-212	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-214	3.860E-10	2.563E-05	2.597E-05	2.925E-05	3.809E-05	9.595E-05	1.345E-03	7.207E-02	7.207E-02	7.207E-02	7.236E-02
Po-215	7.480E-10	8.695E-06	8.826E-06	1.010E-05	1.364E-05	3.897E-05	7.827E-04	7.246E-02	7.246E-02	7.246E-02	7.317E-02
Po-216	7.870E-11	2.563E-05	2.597E-05	2.925E-05	3.809E-05	9.595E-05	1.345E-03	7.230E-02	7.230E-02	7.230E-02	7.250E-02
Po-218	4.260E-11	2.569E-05	2.603E-05	2.931E-05	3.817E-05	9.616E-05	1.347E-03	7.230E-02	7.230E-02	7.230E-02	7.250E-02
Ra-223	4.340E-07	5.780E-07	5.893E-07	7.024E-07	1.037E-06	4.062E-06	2.007E-04	7.312E-02	7.312E-02	7.312E-02	7.402E-02
Ra-224	3.720E-08	7.889E-07	8.041E-07	9.544E-07	1.397E-06	5.301E-06	2.393E-04	7.316E-02	7.316E-02	7.316E-02	7.401E-02
Ra-226	2.290E-08	3.795E-07	3.873E-07	4.647E-07	6.967E-07	2.875E-06	1.650E-04	7.333E-02	7.333E-02	7.333E-02	7.413E-02
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rn-219	2.250E-07	3.252E-06	3.307E-06	3.841E-06	5.359E-06	1.719E-05	4.802E-04	7.285E-02	7.285E-02		

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 7.285E-02  7.370E-02
 Rn-220   1.700E-09   1.153E-05  1.170E-05  1.333E-05  1.784E-05  4.939E-05  9.066E-04  7.215E-02  7.215E-02
 7.215E-02  7.290E-02
 Rn-222   1.740E-09   1.049E-05  1.064E-05  1.215E-05  1.630E-05  4.562E-05  8.629E-04  7.215E-02  7.215E-02
 7.215E-02  7.295E-02
 Th-227   3.780E-07   1.316E-06  1.341E-06  1.578E-06  2.269E-06  8.084E-06  3.049E-04  7.321E-02  7.321E-02
 7.321E-02  7.394E-02
 Th-228   5.590E-09   5.610E-08  5.743E-08  7.089E-08  1.132E-07  5.824E-07  6.277E-05  7.354E-02  7.354E-02
 7.354E-02  7.431E-02
 Th-230   8.190E-10   3.261E-09  3.354E-09  4.317E-09  7.565E-09  5.389E-08  1.472E-05  7.382E-02  7.382E-02
 7.382E-02  7.436E-02
 Th-231   2.450E-08   1.600E-09  1.648E-09  2.144E-09  3.848E-09  2.982E-08  1.035E-05  7.391E-02  7.391E-02
 7.391E-02  7.447E-02
 Th-232   3.420E-10   4.652E-10  4.800E-10  6.356E-10  1.186E-09  1.054E-08  5.403E-06  7.420E-02  7.420E-02
 7.420E-02  7.463E-02
 Th-234   1.630E-08   4.674E-10  4.823E-10  6.395E-10  1.197E-09  1.075E-08  5.679E-06  7.400E-02  7.400E-02
 7.400E-02  7.443E-02
 Tl-207   1.520E-08   1.130E-05  1.147E-05  1.307E-05  1.749E-05  4.843E-05  8.890E-04  7.240E-02  7.240E-02
 7.240E-02  7.303E-02
 Tl-208   1.760E-05   2.400E-04  2.423E-04  2.638E-04  3.187E-04  6.175E-04  4.087E-03  7.258E-02  7.258E-02
 7.258E-02  6.980E-02
 Tl-210   0.000E+00   7.700E-02  7.700E-02  7.700E-02  7.700E-02  7.700E-02  7.700E-02  7.700E-02  7.700E-02
 7.700E-02  7.700E-02
 U-234    2.520E-10   1.455E-09  1.498E-09  1.946E-09  3.483E-09  2.671E-08  9.000E-06  7.425E-02  7.425E-02
 7.425E-02  7.475E-02
 U-235    5.180E-07   2.900E-07  2.961E-07  3.567E-07  5.397E-07  2.298E-06  1.443E-04  7.330E-02  7.330E-02
 7.330E-02  7.414E-02
 U-238    4.990E-11   4.765E-19  5.083E-19  9.082E-19  3.299E-18  3.015E-16  1.207E-10  7.632E-02  7.632E-02
 7.632E-02  7.632E-02
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 * - Units are 1/yr per (pCi/g) at infinite depth and area.  Multiplication by ETFG(i,t) converts to site
conditions.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page   5
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                          Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                                        As pCi/yr at t= 0.000E+00 years

            Water Independent Pathways (Inhalation w/o radon)                        Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
   Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Pa-231    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Pb-210    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Ra-226    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Ra-228    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-228    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-230    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-232    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-234     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-235     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-238     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
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 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 0.000E+00 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days       05/05/2011  11:25  Page   6
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                   and Fraction of Total Risk at t= 0.000E+00 years
0                                      Water Independent Pathways (Inhalation excludes radon)
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0              Ground           Inhalation            Plant              Meat              Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  6.677E-11 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pa-231  3.883E-12 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pb-210  2.697E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-226  7.953E-09 0.2647  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-228  2.341E-09 0.0779  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-228  1.965E-08 0.6540  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-230  3.810E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-232  2.316E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-234   5.264E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-235   2.047E-12 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-238   2.705E-11 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
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ÍÍÍÍÍÍ
 Total   3.004E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
0
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

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              Water              Fish              Plant              Meat              Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.677E-11 
0.0022
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.883E-12 
0.0001
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.697E-14 
0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.953E-09 
0.2647
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.341E-09 
0.0779
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.965E-08 
0.6540
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.810E-17 
0.0000
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.316E-18 
0.0000
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.264E-18 
0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.047E-12 
0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.705E-11 
0.0009
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.004E-08 
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page   7
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 0.000E+00 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
```

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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Ac-227	5.517E-11	0.0018	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	1.549E-11	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	2.236E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	7.932E-09	0.2640	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	1.010E-08	0.3362	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	4.319E-09	0.1438	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	2.110E-11	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	7.569E-09	0.2520	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	7.738E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	2.048E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	2.705E-11	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
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Total	3.004E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 8
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

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                Water              Fish              Radon             Plant              Meat
Milk            All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.517E-11 0.0018
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.549E-11 0.0005
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.236E-14 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.932E-09 0.2640
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.010E-08 0.3362
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.319E-09 0.1438
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.110E-11 0.0007
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.569E-09 0.2520
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.738E-16 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.048E-12 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.705E-11 0.0009
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.004E-08 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page   9
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                                  As pCi/yr at t= 1.000E+00 years

            Water Independent Pathways (Inhalation w/o radon)                    Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
```

Milk	Ingestion*										
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+00 years

0

Radon Pathway	Radionuclides: Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Plant		Meat		Milk		Soil
Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ
Ac-227	6.782E-11	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	3.951E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	2.743E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	8.043E-09	0.2650	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	2.371E-09	0.0781	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	1.983E-08	0.6535	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	3.918E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	2.389E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	5.420E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	2.089E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	2.741E-11	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ
Total	3.035E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

Water Dependent Pathways

Water		Fish		Plant		Meat		Milk		All Pathways**
Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		

Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.782E-11	0.0022
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.951E-12	0.0001
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.743E-14	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.043E-09	0.2650
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.371E-09	0.0781
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.983E-08	0.6535
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.918E-17	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.389E-18	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.420E-18	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.089E-12	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.741E-11	0.0009
ÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍ
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.035E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 11
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
ÄÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ÍÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

```
  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  5.428E-11 0.0018  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  1.749E-11 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  2.205E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  8.018E-09 0.2642  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.029E-08 0.3389  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  3.035E-09 0.1000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.481E-11 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  8.884E-09 0.2927  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   9.904E-16 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   2.091E-12 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   2.741E-11 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Total   3.035E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  12
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+00 years
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Water Dependent Pathways

```
                Water                Fish                Radon              Plant                Meat
Milk            All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.428E-11 0.0018
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.749E-11 0.0006
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.205E-14 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.018E-09 0.2642
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.029E-08 0.3389
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.035E-09 0.1000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.481E-11 0.0008
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.884E-09 0.2927
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.904E-16 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.091E-12 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.741E-11 0.0009
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.035E-08 1.0000
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***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 13
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 1.000E+01 years

Water Independent Pathways (Inhalation w/o radon) Water Dependent Pathways

Radio- Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+01 years

0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Plant		Meat		Milk		Soil
Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ
Ac-227	7.806E-11	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	4.620E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	3.204E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	8.902E-09	0.2675	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	2.651E-09	0.0797	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	2.161E-08	0.6493	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	5.043E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	3.163E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	7.040E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	2.516E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	3.094E-11	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
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Total	3.327E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Water	Fish	Plant	Meat	Milk	All

Pathways**

Radio-Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.806E-11	0.0023
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.620E-12	0.0001
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.204E-14	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.902E-09	0.2675
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.651E-09	0.0797
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.161E-08	0.6493
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.043E-17	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.163E-18	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.040E-18	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.516E-12	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.094E-11	0.0009
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.327E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 15
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
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Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+01 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  4.691E-11 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  3.576E-11 0.0011  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  1.947E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  8.840E-09 0.2657  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  5.281E-09 0.1587  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  1.268E-10 0.0038  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  6.199E-11 0.0019  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  1.885E-08 0.5665  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   4.721E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   2.524E-12 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   3.094E-11 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Total   3.327E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  16
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD
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Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.691E-11	0.0014
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.576E-11	0.0011
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.947E-14	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.840E-09	0.2657
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.281E-09	0.1587
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.268E-10	0.0038
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.199E-11	0.0019
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.885E-08	0.5665
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.721E-15	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.524E-12	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.094E-11	0.0009
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.327E-08	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+01 years

Radio- Nuclide	Water Independent Pathways (Inhalation w/o radon) Inhalation	Plant	Meat	Milk	Total Soil	Water Dependent Pathways Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+01 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  18
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

0	Water Independent Pathways (Inhalation excludes radon)											
0 Soil	Ground		Inhalation		Plant		Meat		Milk			
Radio- Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	1.068E-10	0.0026	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	6.540E-12	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	4.541E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	1.115E-08	0.2731	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	3.400E-09	0.0833	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	2.613E-08	0.6398	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	8.835E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	5.902E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	1.259E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	3.804E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	4.049E-11	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	4.084E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

Radio- Nuclide	Water risk	Water fract.	Fish risk	Fish fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	All Pathways** risk	All Pathways** fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.068E-10	0.0026
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.540E-12	0.0002
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.541E-14	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.115E-08	0.2731
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.400E-09	0.0833
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.613E-08	0.6398
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.835E-17	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.902E-18	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.259E-17	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.804E-12	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.049E-11	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.084E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 19
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 3.000E+01 years

0 Radionuclides

Radon

Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0

Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.
Ac-227	3.394E-11	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	7.932E-11	0.0019	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	1.480E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	1.098E-08	0.2689	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	5.963E-10	0.0146	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	1.093E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	1.732E-10	0.0042	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	2.893E-08	0.7084	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	2.850E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	3.842E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	4.049E-11	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	4.084E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

Radio- Nuclide	Water risk	Water fract.	Fish risk	Fish fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.
	All pathways											
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 21
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 1.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways			
Nuclide	Inhalation	Plant	Meat	Milk	Total Soil	Water	Fish	Plant	Meat
Milk	Ingestion*								
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+02 years

0

Radon	Radionuclides							
Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  22
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  and Fraction of Total Risk at t= 1.000E+02 years
0                                      Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Plant             Meat              Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  3.222E-10 0.0038  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pa-231  2.207E-11 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pb-210  1.588E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-226  2.457E-08 0.2924  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-228  8.122E-09 0.0966  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-228  5.089E-08 0.6055  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-230  6.289E-16 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-232  5.238E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-234   9.625E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-235   1.616E-11 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-238   1.038E-10 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
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ÍÍÍÍÍÍ
 Total   8.405E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
0
```

and Fraction of Total Risk at t= 1.000E+02 years

Water Dependent Pathways

Radio- Nuclide	Water risk	Water fract.	Fish risk	Fish fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	All Pathways** risk	All Pathways** fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.222E-10	0.0038
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.207E-11	0.0003
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.588E-13	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.457E-08	0.2924
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.122E-09	0.0966
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.089E-08	0.6055
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.289E-16	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.238E-17	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.625E-17	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.616E-11	0.0002
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.038E-10	0.0012
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.405E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 23
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground Soil risk	fract.	Inhalation risk	fract.	Radon risk	fract.	Plant risk	fract.	Meat risk	fract.	Milk risk	fract.
Ac-227	1.103E-11	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	3.327E-10	0.0040	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	5.833E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	2.347E-08	0.2792	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	2.560E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	2.057E-24	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	1.104E-09	0.0131	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	5.901E-08	0.7021	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	5.313E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	1.673E-11	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.038E-10	0.0012	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

```
 Total   8.405E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  24
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+02 years

                                                     Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.103E-11 0.0001
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.327E-10 0.0040
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.833E-15 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.347E-08 0.2792
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.560E-13 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.057E-24 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.104E-09 0.0131
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.901E-08 0.7021
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.313E-13 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.673E-11 0.0002
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.038E-10 0.0012
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.405E-08 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
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Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways			
Nuclide	Inhalation	Plant	Meat	Milk	Total Soil	Water	Fish	Plant	Meat
Milk	Ingestion*								
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+02 years

0

Radon	Radionuclides							
Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  26
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  and Fraction of Total Risk at t= 3.000E+02 years
0                                      Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Plant             Meat              Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
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 Ac-227  8.225E-09 0.0119  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pa-231  7.130E-10 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pb-210  6.893E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-226  2.370E-07 0.3424  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-228  9.775E-08 0.1412  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-228  3.459E-07 0.4998  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-230  1.714E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-232  2.681E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-234   3.218E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-235   1.010E-09 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-238   1.534E-09 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
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 Total   6.921E-07 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000
0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.225E-09
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.130E-10
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.893E-12
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.370E-07
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.775E-08
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.459E-07
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.714E-13
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.681E-14
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.218E-14
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.010E-09
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.534E-09
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.921E-07

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 27
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 3.000E+02 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

0

Water Independent Pathways (Inhalation excludes radon)

0

Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	4.830E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	8.885E-09	0.0128	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	4.944E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	2.076E-07	0.2999	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	6.328E-23	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	2.938E-08	0.0424	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	4.437E-07	0.6410	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	4.129E-11	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	1.062E-09	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.534E-09	0.0022	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

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0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   6.921E-07 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  28
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 3.000E+02 years

                                                     Water Dependent Pathways

              Water               Fish               Radon             Plant               Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.830E-13 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.885E-09 0.0128
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.944E-16 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.076E-07 0.2999
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.328E-23 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.938E-08 0.0424
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.437E-07 0.6410
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.129E-11 0.0001
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.062E-09 0.0015
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.534E-09 0.0022
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

0.0000 6.921E-07 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 29
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 6.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways				
Nuclide	Inhalation	Plant	Meat	Milk	Total Soil	Water	Fish	Plant	Meat	Milk
	Ingestion*									
Ac-227	4.780E-03	0.000E+00	0.000E+00	0.000E+00	2.770E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.770E+00									
Pa-231	4.781E-03	0.000E+00	0.000E+00	0.000E+00	2.771E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.771E+00									
Pb-210	4.811E-03	0.000E+00	0.000E+00	0.000E+00	2.788E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.788E+00									
Ra-226	4.828E-03	0.000E+00	0.000E+00	0.000E+00	2.798E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.798E+00									
Ra-228	4.818E-03	0.000E+00	0.000E+00	0.000E+00	2.792E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.792E+00									
Th-228	4.818E-03	0.000E+00	0.000E+00	0.000E+00	2.792E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.792E+00									
Th-230	4.817E-03	0.000E+00	0.000E+00	0.000E+00	2.792E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.792E+00									
Th-232	4.817E-03	0.000E+00	0.000E+00	0.000E+00	2.792E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.792E+00									
U-234	4.734E-03	0.000E+00	0.000E+00	0.000E+00	2.744E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.744E+00									
U-235	4.734E-03	0.000E+00	0.000E+00	0.000E+00	2.744E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.744E+00									
U-238	4.734E-03	0.000E+00	0.000E+00	0.000E+00	2.744E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	2.744E+00									

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 6.000E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

1RESRAD, Version 6.5   T« Limit = 180 days   05/05/2011 11:25 Page 30
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 6.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.266E-06	0.0626	1.221E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.170E-08	0.0011
Pa-231	1.197E-07	0.0059	4.371E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.513E-09	0.0004
Pb-210	3.693E-09	0.0002	1.775E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.152E-07	0.0057
Ra-226	7.344E-06	0.3633	1.638E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.728E-08	0.0009
Ra-228	3.915E-06	0.1937	2.529E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.800E-08	0.0024
Th-228	6.718E-06	0.3324	8.326E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.415E-08	0.0007
Th-230	7.207E-10	0.0000	1.965E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.986E-09	0.0002
Th-232	3.025E-10	0.0000	2.503E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.456E-09	0.0002
U-234	2.191E-10	0.0000	1.579E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.144E-09	0.0002
U-235	4.659E-07	0.0231	1.420E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.214E-09	0.0002
U-238	9.659E-08	0.0048	1.342E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.970E-09	0.0002

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ÍÍÍÍÍÍ
 Total   1.993E-05 0.9860  3.966E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.426E-07
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 6.000E+02 years

Water Dependent Pathways

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              Water              Fish              Plant             Meat              Milk          All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.299E-06
0.0643
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.316E-07
0.0065
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.207E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.362E-06
0.3643
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.966E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.740E-06
0.3335
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.672E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.261E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.942E-09
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.706E-07
0.0233
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.019E-07
0.0050
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.021E-05
1.0000
```

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 31
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 6.000E+02 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 6.000E+02 years

0

Water Independent Pathways (Inhalation excludes radon)

0

Radio- Nuclide	Ground Soil risk	fract.	Inhalation risk	fract.	Radon risk	fract.	Plant risk	fract.	Meat risk	fract.	Milk risk	fract.
Ac-227	5.318E-15	0.0000	5.130E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	1.368E-06	0.0677	1.638E-08	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	2.303E-17	0.0000	1.107E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	5.652E-06	0.2797	2.645E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	1.691E-06	0.0836	2.721E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.063E-05	0.5261	1.336E-08	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	5.005E-09	0.0002	1.589E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

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 U-235   4.827E-07 0.0239  1.622E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.570E-09 0.0002
 U-238   9.660E-08 0.0048  1.345E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.976E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   1.993E-05 0.9860  3.966E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.426E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  32
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 6.000E+02 years

                                                     Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.460E-15 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.414E-06 0.0699
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.525E-16 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.758E-06 0.2849
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.727E-06 0.0854
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.071E-05 0.5301
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.833E-09 0.0005
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.879E-07 0.0241
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.019E-07 0.0050
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Total 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 2.021E-05 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 33

Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 7.500E+02 years

Radio- Nuclide	Water Independent Pathways (Inhalation w/o radon): Inhalation	Plant	Meat	Milk	Total Soil	Water Dependent Pathways: Water	Fish	Plant	Meat	Milk	Ingestion*
Ac-227	4.763E-03	0.000E+00	0.000E+00	0.000E+00	2.760E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.760E+00
Pa-231	4.763E-03	0.000E+00	0.000E+00	0.000E+00	2.761E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.761E+00
Pb-210	4.805E-03	0.000E+00	0.000E+00	0.000E+00	2.785E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.785E+00
Ra-226	4.822E-03	0.000E+00	0.000E+00	0.000E+00	2.794E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.794E+00
Ra-228	4.810E-03	0.000E+00	0.000E+00	0.000E+00	2.787E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.787E+00
Th-228	4.810E-03	0.000E+00	0.000E+00	0.000E+00	2.787E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.787E+00
Th-230	4.809E-03	0.000E+00	0.000E+00	0.000E+00	2.787E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.787E+00
Th-232	4.809E-03	0.000E+00	0.000E+00	0.000E+00	2.787E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.787E+00
U-234	4.706E-03	0.000E+00	0.000E+00	0.000E+00	2.727E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.727E+00
U-235	4.706E-03	0.000E+00	0.000E+00	0.000E+00	2.727E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.727E+00
U-238	4.706E-03	0.000E+00	0.000E+00	0.000E+00	2.727E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.727E+00

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* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
  and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 7.500E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:25 Page 34
Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 7.500E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.261E-06	0.0625	1.216E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.163E-08	0.0011
Pa-231	1.193E-07	0.0059	4.355E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.486E-09	0.0004
Pb-210	3.688E-09	0.0002	1.773E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.150E-07	0.0057
Ra-226	7.335E-06	0.3635	1.636E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.726E-08	0.0009
Ra-228	3.909E-06	0.1937	2.525E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.793E-08	0.0024
Th-228	6.707E-06	0.3324	8.312E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.413E-08	0.0007
Th-230	7.195E-10	0.0000	1.962E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.980E-09	0.0002
Th-232	3.020E-10	0.0000	2.499E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.448E-09	0.0002
U-234	2.178E-10	0.0000	1.570E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.125E-09	0.0002
U-235	4.631E-07	0.0230	1.412E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.195E-09	

```
0.0002
 U-238   9.601E-08 0.0048  1.334E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.946E-09
0.0002
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ÍÍÍÍÍÍ
 Total   1.989E-05 0.9860  3.954E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.422E-07
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 7.500E+02 years

Water Dependent Pathways

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                Water              Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.295E-06
0.0642
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.311E-07
0.0065
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.205E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.354E-06
0.3645
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.959E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.729E-06
0.3335
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.661E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.249E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.912E-09
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.677E-07
0.0232
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.013E-07
0.0050
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.018E-05
1.0000
```

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 7.500E+02 years

0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
	Radionuclides							
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 7.500E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0

Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	4.468E-17	0.0000	4.310E-19	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.663E-19	0.0000
Pa-231	1.359E-06	0.0674	1.627E-08	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.867E-08	0.0014
Pb-210	2.137E-19	0.0000	1.027E-19	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.666E-18	0.0000
Ra-226	5.291E-06	0.2623	2.476E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.657E-08	0.0048
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	2.040E-06	0.1011	2.879E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.957E-08	0.0020
Th-232	1.062E-05	0.5262	1.334E-08	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00			

```
0.0000  6.650E-08 0.0033
 U-234   7.487E-09 0.0004  1.583E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.267E-09 0.0002
 U-235   4.841E-07 0.0240  1.664E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.640E-09 0.0002
 U-238   9.602E-08 0.0048  1.338E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.953E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   1.989E-05 0.9860  3.954E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.422E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  36
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 7.500E+02 years

                                                   Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.588E-17 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.404E-06 0.0696
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.983E-18 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.390E-06 0.2672
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.083E-06 0.1032
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.070E-05 0.5301
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.234E-08 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

											0.0000	4.894E-07	0.0243
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.013E-07	0.0050
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.018E-05	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 1.000E+03 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	4.735E-03	0.000E+00	0.000E+00	0.000E+00	2.744E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.744E+00
Pa-231	4.735E-03	0.000E+00	0.000E+00	0.000E+00	2.744E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.744E+00
Pb-210	4.795E-03	0.000E+00	0.000E+00	0.000E+00	2.779E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.779E+00
Ra-226	4.812E-03	0.000E+00	0.000E+00	0.000E+00	2.789E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.789E+00
Ra-228	4.796E-03	0.000E+00	0.000E+00	0.000E+00	2.780E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.780E+00
Th-228	4.796E-03	0.000E+00	0.000E+00	0.000E+00	2.780E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.780E+00
Th-230	4.796E-03	0.000E+00	0.000E+00	0.000E+00	2.779E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.779E+00
Th-232	4.796E-03	0.000E+00	0.000E+00	0.000E+00	2.780E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.780E+00
U-234	4.659E-03	0.000E+00	0.000E+00	0.000E+00	2.700E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.700E+00
U-235	4.659E-03	0.000E+00	0.000E+00	0.000E+00	2.700E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.700E+00
U-238	4.659E-03	0.000E+00	0.000E+00	0.000E+00	2.700E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.700E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+03 years

0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years

0 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.253E-06	0.0623	1.209E-08	0.0006	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.150E-08	0.0011
Pa-231	1.186E-07	0.0059	4.329E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.441E-09	0.0004
Pb-210	3.681E-09	0.0002	1.770E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.148E-07	0.0057
Ra-226	7.319E-06	0.3638	1.632E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.722E-08	0.0009
Ra-228	3.898E-06	0.1938	2.518E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.779E-08	0.0024
Th-228	6.688E-06	0.3325	8.289E-09	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.409E-08	0.0007
Th-230	7.174E-10	0.0000	1.956E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.969E-09	0.0002
Th-232	3.012E-10	0.0000	2.492E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.436E-09	0.0002

```
 U-234   2.157E-10 0.0000  1.554E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.094E-09
0.0002
 U-235   4.585E-07 0.0228  1.397E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.163E-09
0.0002
 U-238   9.506E-08 0.0047  1.321E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.907E-09
0.0002
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 Total   1.984E-05 0.9860  3.935E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.414E-07
0.0120
0
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years

Water Dependent Pathways

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              Water              Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.287E-06
0.0640
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.303E-07
0.0065
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.203E-07
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.338E-06
0.3648
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.948E-06
0.1963
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.711E-06
0.3336
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.642E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.229E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.863E-09
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.631E-07
0.0230
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.003E-07
0.0050
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.012E-05
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  39
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 1.000E+03 years
0                                                          Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                                    and Fraction of Total Risk at t= 1.000E+03 years
0                                                 Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat
Milk               Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide   risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.    risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.552E-20 0.0000  1.497E-22 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.661E-22 0.0000
 Pa-231  1.344E-06 0.0668  1.609E-08 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.835E-08 0.0014
 Pb-210  8.759E-23 0.0000  4.211E-23 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.732E-21 0.0000
 Ra-226  4.740E-06 0.2356  2.218E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.650E-08 0.0043
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Th-230  2.572E-06 0.1278  3.117E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.925E-08 0.0024
 Th-232  1.059E-05 0.5263  1.330E-08 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.632E-08 0.0033
 U-234   1.258E-08 0.0006  1.572E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.332E-09 0.0002
 U-235   4.864E-07 0.0242  1.733E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.754E-09 0.0002
 U-238   9.507E-08 0.0047  1.325E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.916E-09 0.0002
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 Total   1.984E-05 0.9860  3.935E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.414E-07 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  40
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+03 years

                                                   Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.593E-20 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.389E-06 0.0690
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.862E-21 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.829E-06 0.2400
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.624E-06 0.1304
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.067E-05 0.5302
```

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 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.749E-08 0.0009
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.919E-07 0.0245
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.003E-07 0.0050
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.012E-05 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  41
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                       Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                                   As pCi/yr at t= 2.300E+03 years

            Water Independent Pathways (Inhalation w/o radon)                     Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
   Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    4.587E-03  0.000E+00  0.000E+00  0.000E+00  2.659E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.659E+00
 Pa-231    4.588E-03  0.000E+00  0.000E+00  0.000E+00  2.659E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.659E+00
 Pb-210    4.738E-03  0.000E+00  0.000E+00  0.000E+00  2.746E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.746E+00
 Ra-226    4.755E-03  0.000E+00  0.000E+00  0.000E+00  2.756E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.756E+00
 Ra-228    4.728E-03  0.000E+00  0.000E+00  0.000E+00  2.740E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.740E+00
 Th-228    4.728E-03  0.000E+00  0.000E+00  0.000E+00  2.740E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.740E+00
 Th-230    4.725E-03  0.000E+00  0.000E+00  0.000E+00  2.738E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.738E+00
 Th-232    4.728E-03  0.000E+00  0.000E+00  0.000E+00  2.740E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.740E+00
 U-234     4.423E-03  0.000E+00  0.000E+00  0.000E+00  2.563E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.563E+00
 U-235     4.423E-03  0.000E+00  0.000E+00  0.000E+00  2.563E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  2.563E+00
 U-238     4.423E-03  0.000E+00  0.000E+00  0.000E+00  2.563E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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 0.000E+00  2.563E+00
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 2.300E+03 years
0                                                Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days       05/05/2011  11:25  Page  42
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                 and Fraction of Total Risk at t= 2.300E+03 years
0                                     Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Plant             Meat              Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
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 Ac-227  1.228E-06 0.0629  1.172E-08 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.083E-08
0.0011
 Pa-231  1.163E-07 0.0060  4.194E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.210E-09
0.0004
 Pb-210  3.677E-09 0.0002  1.749E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.135E-07
0.0058
 Ra-226  7.145E-06 0.3664  1.613E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.702E-08
0.0009
 Ra-228  3.823E-06 0.1961  2.482E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.711E-08
0.0024
 Th-228  6.377E-06 0.3270  8.171E-09 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.389E-08
0.0007
 Th-230  7.120E-10 0.0000  1.927E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.910E-09
```

```
0.0002
 Th-232  2.986E-10 0.0000  2.456E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.373E-09
0.0002
 U-234   2.061E-10 0.0000  1.475E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.937E-09
0.0002
 U-235   4.402E-07 0.0226  1.327E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.003E-09
0.0002
 U-238   9.057E-08 0.0046  1.254E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.709E-09
0.0002
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ÍÍÍÍÍÍ
 Total   1.923E-05 0.9859  3.836E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.374E-07
0.0122
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 2.300E+03 years

Water Dependent Pathways

```
                Water              Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.260E-06
0.0646
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.278E-07
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.189E-07
0.0061
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.164E-06
0.3673
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.873E-06
0.1986
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.399E-06
0.3282
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.549E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.128E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.618E-09
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.446E-07
0.0228
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 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.553E-08
0.0049
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.950E-05
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  43
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

              Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                          Radon and its Decay Products at t= 2.300E+03 years
0                                                    Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                       and Fraction of Total Risk at t= 2.300E+03 years
0                                    Water Independent Pathways (Inhalation excludes radon)
0            Ground          Inhalation          Radon            Plant             Meat
Milk             Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk    fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.    risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  1.282E-06 0.0657  1.517E-08 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.674E-08 0.0014
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  2.642E-06 0.1355  1.251E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.880E-08 0.0025
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  4.455E-06 0.2284  3.975E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.456E-08 0.0043
 Th-232  1.020E-05 0.5231  1.311E-08 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.537E-08 0.0034
 U-234   5.280E-08 0.0027  1.528E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.936E-09 0.0002
 U-235   5.024E-07 0.0258  2.064E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.301E-09 0.0002
 U-238   9.069E-08 0.0047  1.264E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.731E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   1.923E-05 0.9859  3.836E-08 0.0020  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.374E-07 0.0122
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  44
 Intrisk : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                        and Fraction of Total Risk at t= 2.300E+03 years

                                                  Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.324E-06 0.0679
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.692E-06 0.1380
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

```
0.0000  4.543E-06 0.2330
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.028E-05 0.5271
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.827E-08 0.0030
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.087E-07 0.0261
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.569E-08 0.0049
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.950E-05 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
```

Appendix G-8
RESRAD Dose Output for Trespasser Youth Future Baseline

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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(2)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(3)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(4)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(5)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(6)

```
A-1  ³ Bi-214   (Source: FGR 12)                                  ³ 9.808E+00 ³ 9.808E+00 ³ DCF1(  7)
A-1  ³ Fr-223   (Source: FGR 12)                                  ³ 1.980E-01 ³ 1.980E-01 ³ DCF1(  8)
A-1  ³ Pa-231   (Source: FGR 12)                                  ³ 1.906E-01 ³ 1.906E-01 ³ DCF1(  9)
A-1  ³ Pa-234   (Source: FGR 12)                                  ³ 1.155E+01 ³ 1.155E+01 ³ DCF1( 10)
A-1  ³ Pa-234m  (Source: FGR 12)                                  ³ 8.967E-02 ³ 8.967E-02 ³ DCF1( 11)
A-1  ³ Pb-210   (Source: FGR 12)                                  ³ 2.447E-03 ³ 2.447E-03 ³ DCF1( 12)
A-1  ³ Pb-211   (Source: FGR 12)                                  ³ 3.064E-01 ³ 3.064E-01 ³ DCF1( 13)
A-1  ³ Pb-212   (Source: FGR 12)                                  ³ 7.043E-01 ³ 7.043E-01 ³ DCF1( 14)
A-1  ³ Pb-214   (Source: FGR 12)                                  ³ 1.341E+00 ³ 1.341E+00 ³ DCF1( 15)
A-1  ³ Po-210   (Source: FGR 12)                                  ³ 5.231E-05 ³ 5.231E-05 ³ DCF1( 16)
A-1  ³ Po-211   (Source: FGR 12)                                  ³ 4.764E-02 ³ 4.764E-02 ³ DCF1( 17)
A-1  ³ Po-212   (Source: FGR 12)                                  ³ 0.000E+00 ³ 0.000E+00 ³ DCF1( 18)
A-1  ³ Po-214   (Source: FGR 12)                                  ³ 5.138E-04 ³ 5.138E-04 ³ DCF1( 19)
A-1  ³ Po-215   (Source: FGR 12)                                  ³ 1.016E-03 ³ 1.016E-03 ³ DCF1( 20)
A-1  ³ Po-216   (Source: FGR 12)                                  ³ 1.042E-04 ³ 1.042E-04 ³ DCF1( 21)
A-1  ³ Po-218   (Source: FGR 12)                                  ³ 5.642E-05 ³ 5.642E-05 ³ DCF1( 22)
A-1  ³ Ra-223   (Source: FGR 12)                                  ³ 6.034E-01 ³ 6.034E-01 ³ DCF1( 23)
A-1  ³ Ra-224   (Source: FGR 12)                                  ³ 5.119E-02 ³ 5.119E-02 ³ DCF1( 24)
A-1  ³ Ra-226   (Source: FGR 12)                                  ³ 3.176E-02 ³ 3.176E-02 ³ DCF1( 25)
A-1  ³ Ra-228   (Source: FGR 12)                                  ³ 0.000E+00 ³ 0.000E+00 ³ DCF1( 26)
A-1  ³ Rn-219   (Source: FGR 12)                                  ³ 3.083E-01 ³ 3.083E-01 ³ DCF1( 27)
A-1  ³ Rn-220   (Source: FGR 12)                                  ³ 2.298E-03 ³ 2.298E-03 ³ DCF1( 28)
A-1  ³ Rn-222   (Source: FGR 12)                                  ³ 2.354E-03 ³ 2.354E-03 ³ DCF1( 29)
A-1  ³ Th-227   (Source: FGR 12)                                  ³ 5.212E-01 ³ 5.212E-01 ³ DCF1( 30)
A-1  ³ Th-228   (Source: FGR 12)                                  ³ 7.940E-03 ³ 7.940E-03 ³ DCF1( 31)
A-1  ³ Th-230   (Source: FGR 12)                                  ³ 1.209E-03 ³ 1.209E-03 ³ DCF1( 32)
A-1  ³ Th-231   (Source: FGR 12)                                  ³ 3.643E-02 ³ 3.643E-02 ³ DCF1( 33)
A-1  ³ Th-232   (Source: FGR 12)                                  ³ 5.212E-04 ³ 5.212E-04 ³ DCF1( 34)
A-1  ³ Th-234   (Source: FGR 12)                                  ³ 2.410E-02 ³ 2.410E-02 ³ DCF1( 35)
A-1  ³ Tl-207   (Source: FGR 12)                                  ³ 1.980E-02 ³ 1.980E-02 ³ DCF1( 36)
A-1  ³ Tl-208   (Source: FGR 12)                                  ³ 2.298E+01 ³ 2.298E+01 ³ DCF1( 37)
A-1  ³ Tl-210   (Source: no data)                                 ³ 0.000E+00 ³-2.000E+00 ³ DCF1( 38)
A-1  ³ U-234    (Source: FGR 12)                                  ³ 4.017E-04 ³ 4.017E-04 ³ DCF1( 39)
A-1  ³ U-235    (Source: FGR 12)                                  ³ 7.211E-01 ³ 7.211E-01 ³ DCF1( 40)
A-1  ³ U-238    (Source: FGR 12)                                  ³ 1.031E-04 ³ 1.031E-04 ³ DCF1( 41)
     ³                                                            ³           ³           ³
B-1  ³ Dose conversion factors for inhalation, mrem/pCi:          ³           ³           ³
B-1  ³ Ac-227+D                                                   ³ 6.724E+00 ³ 6.700E+00 ³ DCF2(  1)
B-1  ³ Pa-231                                                     ³ 1.280E+00 ³ 1.280E+00 ³ DCF2(  2)
B-1  ³ Pb-210+D                                                   ³ 2.320E-02 ³ 1.360E-02 ³ DCF2(  3)
B-1  ³ Ra-226+D                                                   ³ 8.594E-03 ³ 8.580E-03 ³ DCF2(  4)
B-1  ³ Ra-228+D                                                   ³ 5.078E-03 ³ 4.770E-03 ³ DCF2(  5)
B-1  ³ Th-228+D                                                   ³ 3.454E-01 ³ 3.420E-01 ³ DCF2(  6)
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page   3
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Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-230	3.260E-01	3.260E-01	DCF2(7)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(8)
B-1	U-234	1.320E-01	1.320E-01	DCF2(9)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(10)
B-1	U-238	1.180E-01	1.180E-01	DCF2(11)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(12)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.410E-02	DCF3(1)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(2)
D-1	Pb-210+D	7.276E-03	5.370E-03	DCF3(3)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(4)
D-1	Ra-228+D	1.442E-03	1.440E-03	DCF3(5)
D-1	Th-228+D	8.086E-04	3.960E-04	DCF3(6)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(7)
D-1	Th-232	2.730E-03	2.730E-03	DCF3(8)
D-1	U-234	2.830E-04	2.830E-04	DCF3(9)
D-1	U-235+D	2.673E-04	2.660E-04	DCF3(10)
D-1	U-238	2.550E-04	2.550E-04	DCF3(11)
D-1	U-238+D	2.687E-04	2.550E-04	DCF3(12)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(2,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(3,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(3,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(3,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(4,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(4,2)

```
 D-34 ³ Ra-226+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ Ra-228+D  , plant/soil concentration ratio, dimensionless   ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  5,1)
 D-34 ³ Ra-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,2)
 D-34 ³ Ra-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ Th-228+D  , plant/soil concentration ratio, dimensionless   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  6,1)
 D-34 ³ Th-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  6,2)
 D-34 ³ Th-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  6,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ Th-230    , plant/soil concentration ratio, dimensionless   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  7,1)
 D-34 ³ Th-230    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  7,2)
 D-34 ³ Th-230    , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  7,3)
 D-34 ³                                                             ³           ³           ³
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 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
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                    Dose Conversion Factor (and Related) Parameter Summary (continued)
                                Dose Library: FGR 12 & FGR 11
0     ³                                                             ³  Current  ³   Base    ³  Parameter
 Menu ³                         Parameter                           ³  Value#   ³   Case*   ³    Name
 ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 D-34 ³ Th-232    , plant/soil concentration ratio, dimensionless   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  8,1)
 D-34 ³ Th-232    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  8,2)
 D-34 ³ Th-232    , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  8,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-234     , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF(  9,1)
 D-34 ³ U-234     , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF(  9,2)
 D-34 ³ U-234     , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF(  9,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-235+D   , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF( 10,1)
 D-34 ³ U-235+D   , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF( 10,2)
 D-34 ³ U-235+D   , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF( 10,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-238     , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF( 11,1)
 D-34 ³ U-238     , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF( 11,2)
 D-34 ³ U-238     , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF( 11,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-238+D   , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF( 12,1)
 D-34 ³ U-238+D   , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF( 12,2)
 D-34 ³ U-238+D   , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF( 12,3)
      ³                                                             ³           ³           ³
 D-5  ³ Bioaccumulation factors, fresh water, L/kg:                 ³           ³           ³
```

```
 D-5   ³ Ac-227+D  , fish                                          ³ 1.500E+01 ³ 1.500E+01 ³ BIOFAC(  1,1)
 D-5   ³ Ac-227+D  , crustacea and mollusks                        ³ 1.000E+03 ³ 1.000E+03 ³ BIOFAC(  1,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ Pa-231    , fish                                          ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC(  2,1)
 D-5   ³ Pa-231    , crustacea and mollusks                        ³ 1.100E+02 ³ 1.100E+02 ³ BIOFAC(  2,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ Pb-210+D  , fish                                          ³ 3.000E+02 ³ 3.000E+02 ³ BIOFAC(  3,1)
 D-5   ³ Pb-210+D  , crustacea and mollusks                        ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  3,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ Ra-226+D  , fish                                          ³ 5.000E+01 ³ 5.000E+01 ³ BIOFAC(  4,1)
 D-5   ³ Ra-226+D  , crustacea and mollusks                        ³ 2.500E+02 ³ 2.500E+02 ³ BIOFAC(  4,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ Ra-228+D  , fish                                          ³ 5.000E+01 ³ 5.000E+01 ³ BIOFAC(  5,1)
 D-5   ³ Ra-228+D  , crustacea and mollusks                        ³ 2.500E+02 ³ 2.500E+02 ³ BIOFAC(  5,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ Th-228+D  , fish                                          ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  6,1)
 D-5   ³ Th-228+D  , crustacea and mollusks                        ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  6,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ Th-230    , fish                                          ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  7,1)
 D-5   ³ Th-230    , crustacea and mollusks                        ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  7,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ Th-232    , fish                                          ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  8,1)
 D-5   ³ Th-232    , crustacea and mollusks                        ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  8,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ U-234     , fish                                          ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC(  9,1)
 D-5   ³ U-234     , crustacea and mollusks                        ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC(  9,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ U-235+D   , fish                                          ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 10,1)
 D-5   ³ U-235+D   , crustacea and mollusks                        ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 10,2)
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 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                       Dose Conversion Factor (and Related) Parameter Summary (continued)
                                         Dose Library: FGR 12 & FGR 11
0      ³                                                           ³  Current  ³   Base    ³  Parameter
 Menu  ³                          Parameter                        ³   Value#  ³   Case*   ³    Name
 ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 D-5   ³ U-238     , fish                                          ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 11,1)
 D-5   ³ U-238     , crustacea and mollusks                        ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 11,2)
 D-5   ³                                                           ³           ³           ³
 D-5   ³ U-238+D   , fish                                          ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 12,1)
 D-5   ³ U-238+D   , crustacea and mollusks                        ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 12,2)
 ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
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#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

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Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+04	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	2.000E+00	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	8.500E-01	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	not used	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	1.000E+01	3.000E+00	---	T(3)
R011	Times for calculations (yr)	3.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	1.000E+02	3.000E+01	---	T(5)
R011	Times for calculations (yr)	3.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	6.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	7.500E+02	1.000E+03	---	T(8)
R011	Times for calculations (yr)	1.000E+03	0.000E+00	---	T(9)
R011	Times for calculations (yr)	2.300E+03	0.000E+00	---	T(10)

```
      ³                                                        ³            ³            ³
³
 R012 ³ Initial principal radionuclide (pCi/g):  Ac-227  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(1)
 R012 ³ Initial principal radionuclide (pCi/g):  Pa-231  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(2)
 R012 ³ Initial principal radionuclide (pCi/g):  Pb-210  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(3)
 R012 ³ Initial principal radionuclide (pCi/g):  Ra-226  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(4)
 R012 ³ Initial principal radionuclide (pCi/g):  Ra-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(5)
 R012 ³ Initial principal radionuclide (pCi/g):  Th-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(6)
 R012 ³ Initial principal radionuclide (pCi/g):  Th-230  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(7)
 R012 ³ Initial principal radionuclide (pCi/g):  Th-232  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(8)
 R012 ³ Initial principal radionuclide (pCi/g):  U-234   ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(9)
 R012 ³ Initial principal radionuclide (pCi/g):  U-235   ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(10)
 R012 ³ Initial principal radionuclide (pCi/g):  U-238   ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(11)
 R012 ³ Concentration in groundwater   (pCi/L):  Ac-227  ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 1)
 R012 ³ Concentration in groundwater   (pCi/L):  Pa-231  ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 2)
 R012 ³ Concentration in groundwater   (pCi/L):  Pb-210  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 3)
 R012 ³ Concentration in groundwater   (pCi/L):  Ra-226  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 4)
 R012 ³ Concentration in groundwater   (pCi/L):  Ra-228  ³ 5.460E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 5)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-228  ³ 2.330E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 6)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-230  ³ 5.580E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 7)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-232  ³ 1.730E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 8)
 R012 ³ Concentration in groundwater   (pCi/L):  U-234   ³ 7.360E+01 ³ 0.000E+00 ³           0.000E+00
³ W1( 9)
 R012 ³ Concentration in groundwater   (pCi/L):  U-235   ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
³ W1(10)
```

```
 R012 ³ Concentration in groundwater   (pCi/L):  U-238   ³ 7.280E+01 ³ 0.000E+00 ³             0.000E+00
³ W1(11)
      ³                                                  ³           ³           ³
³
 R013 ³ Cover depth (m)                                  ³ 6.000E-01 ³ 0.000E+00 ³                ---
³ COVER0
 R013 ³ Density of cover material (g/cm**3)              ³ 1.500E+00 ³ 1.500E+00 ³                ---
³ DENSCV
 R013 ³ Cover depth erosion rate (m/yr)                  ³ 1.000E-03 ³ 1.000E-03 ³                ---
³ VCV
 R013 ³ Density of contaminated zone (g/cm**3)           ³ 1.450E+00 ³ 1.500E+00 ³                ---
³ DENSCZ
 R013 ³ Contaminated zone erosion rate (m/yr)            ³ 1.000E-03 ³ 1.000E-03 ³                ---
³ VCZ
 R013 ³ Contaminated zone total porosity                 ³ 4.500E-01 ³ 4.000E-01 ³                ---
³ TPCZ
 R013 ³ Contaminated zone field capacity                 ³ 2.000E-01 ³ 2.000E-01 ³                ---
³ FCCZ
 R013 ³ Contaminated zone hydraulic conductivity (m/yr)  ³ 2.270E+03 ³ 1.000E+01 ³                ---
³ HCCZ
 R013 ³ Contaminated zone b parameter                    ³ 4.000E+00 ³ 5.300E+00 ³                ---
³ BCZ
 R013 ³ Average annual wind speed (m/sec)                ³ 2.000E+00 ³ 2.000E+00 ³                ---
³ WIND
 R013 ³ Humidity in air (g/m**3)                         ³ not used  ³ 8.000E+00 ³                ---
³ HUMID
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 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                                          Site-Specific Parameter Summary (continued)
0     ³                                                  ³   User    ³           ³         Used by RESRAD
³  Parameter
 Menu ³                   Parameter                      ³   Input   ³  Default  ³ (If different from user input)
³    Name

ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R013 ³ Evapotranspiration coefficient                   ³ 7.800E-01 ³ 5.000E-01 ³                ---
³ EVAPTR
 R013 ³ Precipitation (m/yr)                             ³ 9.800E-01 ³ 1.000E+00 ³                ---
³ PRECIP
 R013 ³ Irrigation (m/yr)                                ³ 2.000E-01 ³ 2.000E-01 ³                ---
³ RI
```

```
 R013 ³ Irrigation mode                                ³ overhead  ³ overhead  ³              ---
³ IDITCH
 R013 ³ Runoff coefficient                             ³ 5.000E-01 ³ 2.000E-01 ³              ---
³ RUNOFF
 R013 ³ Watershed area for nearby stream or pond (m**2)  ³ not used  ³ 1.000E+06 ³              ---
³ WAREA
 R013 ³ Accuracy for water/soil computations           ³ not used  ³ 1.000E-03 ³              ---
³ EPS
      ³                                                ³           ³           ³
³
 R014 ³ Density of saturated zone (g/cm**3)            ³ not used  ³ 1.500E+00 ³              ---
³ DENSAQ
 R014 ³ Saturated zone total porosity                  ³ not used  ³ 4.000E-01 ³              ---
³ TPSZ
 R014 ³ Saturated zone effective porosity              ³ not used  ³ 2.000E-01 ³              ---
³ EPSZ
 R014 ³ Saturated zone field capacity                  ³ not used  ³ 2.000E-01 ³              ---
³ FCSZ
 R014 ³ Saturated zone hydraulic conductivity (m/yr)   ³ not used  ³ 1.000E+02 ³              ---
³ HCSZ
 R014 ³ Saturated zone hydraulic gradient              ³ not used  ³ 2.000E-02 ³              ---
³ HGWT
 R014 ³ Saturated zone b parameter                     ³ not used  ³ 5.300E+00 ³              ---
³ BSZ
 R014 ³ Water table drop rate (m/yr)                   ³ not used  ³ 1.000E-03 ³              ---
³ VWT
 R014 ³ Well pump intake depth (m below water table)   ³ not used  ³ 1.000E+01 ³              ---
³ DWIBWT
 R014 ³ Model: Nondispersion (ND) or Mass-Balance (MB) ³ not used  ³ ND        ³              ---
³ MODEL
 R014 ³ Well pumping rate (m**3/yr)                    ³ not used  ³ 2.500E+02 ³              ---
³ UW
      ³                                                ³           ³           ³
³
 R015 ³ Number of unsaturated zone strata              ³ not used  ³ 1         ³              ---
³ NS
      ³                                                ³           ³           ³
³
 R016 ³ Distribution coefficients for Ac-227           ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                  ³ 2.400E+03 ³ 2.000E+01 ³              ---
³ DCNUCC( 1)
 R016 ³   Saturated zone (cm**3/g)                     ³ not used  ³ 2.000E+01 ³              ---
³ DCNUCS( 1)
```

```
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           2.669E-05
³ ALEACH( 1)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 1)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Pa-231        ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)               ³ 2.700E+03 ³ 5.000E+01 ³              ---
³ DCNUCC( 2)
 R016 ³   Saturated zone (cm**3/g)                  ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS( 2)
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           2.373E-05
³ ALEACH( 2)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 2)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Pb-210        ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)               ³ 5.500E+02 ³ 1.000E+02 ³              ---
³ DCNUCC( 3)
 R016 ³   Saturated zone (cm**3/g)                  ³ not used  ³ 1.000E+02 ³              ---
³ DCNUCS( 3)
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           1.164E-04
³ ALEACH( 3)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 3)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Ra-226        ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)               ³ 9.100E+03 ³ 7.000E+01 ³              ---
³ DCNUCC( 4)
 R016 ³   Saturated zone (cm**3/g)                  ³ not used  ³ 7.000E+01 ³              ---
³ DCNUCS( 4)
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           7.040E-06
³ ALEACH( 4)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 4)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Ra-228        ³           ³           ³
³
```

```
 R016 ³   Contaminated zone (cm**3/g)                  ³ 9.100E+03 ³ 7.000E+01 ³          ---
³ DCNUCC( 5)
 R016 ³   Saturated zone (cm**3/g)                     ³ not used  ³ 7.000E+01 ³          ---
³ DCNUCS( 5)
 R016 ³   Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³       7.040E-06
³ ALEACH( 5)
 R016 ³   Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³       not used
³ SOLUBK( 5)
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                                         Site-Specific Parameter Summary (continued)
0     ³                                                ³   User    ³           ³       Used by RESRAD
³  Parameter
 Menu ³                  Parameter                     ³   Input   ³  Default  ³ (If different from user input)
³    Name

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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R016 ³ Distribution coefficients for Th-228           ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                  ³ 5.800E+03 ³ 6.000E+04 ³          ---
³ DCNUCC( 6)
 R016 ³   Saturated zone (cm**3/g)                     ³ not used  ³ 6.000E+04 ³          ---
³ DCNUCS( 6)
 R016 ³   Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³       1.105E-05
³ ALEACH( 6)
 R016 ³   Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³       not used
³ SOLUBK( 6)
      ³                                                ³           ³           ³
³
 R016 ³ Distribution coefficients for Th-230           ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                  ³ 5.800E+03 ³ 6.000E+04 ³          ---
³ DCNUCC( 7)
 R016 ³   Saturated zone (cm**3/g)                     ³ not used  ³ 6.000E+04 ³          ---
³ DCNUCS( 7)
 R016 ³   Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³       1.105E-05
³ ALEACH( 7)
 R016 ³   Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³       not used
³ SOLUBK( 7)
      ³                                                ³           ³           ³
³
```

```
 R016 ³ Distribution coefficients for Th-232                ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 5.800E+03 ³ 6.000E+04 ³              ---
³ DCNUCC( 8)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 6.000E+04 ³              ---
³ DCNUCS( 8)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
³ ALEACH( 8)
 R016 ³   Solubility constant                               ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 8)
      ³                                                     ³           ³           ³
³
 R016 ³ Distribution coefficients for U-234                 ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 1.600E+03 ³ 5.000E+01 ³              ---
³ DCNUCC( 9)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS( 9)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
³ ALEACH( 9)
 R016 ³   Solubility constant                               ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 9)
      ³                                                     ³           ³           ³
³
 R016 ³ Distribution coefficients for U-235                 ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 1.600E+03 ³ 5.000E+01 ³              ---
³ DCNUCC(10)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS(10)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
³ ALEACH(10)
 R016 ³   Solubility constant                               ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK(10)
      ³                                                     ³           ³           ³
³
 R016 ³ Distribution coefficients for U-238                 ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 1.600E+03 ³ 5.000E+01 ³              ---
³ DCNUCC(11)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS(11)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
³ ALEACH(11)
```

```
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK(11)
      ³                                                 ³           ³           ³
³
 R017 ³ Inhalation rate (m**3/yr)                       ³ 1.240E+04 ³ 8.400E+03 ³              ---
³ INHALR
 R017 ³ Mass loading for inhalation (g/m**3)            ³ 3.000E-05 ³ 1.000E-04 ³              ---
³ MLINH
 R017 ³ Exposure duration                               ³ 1.200E+01 ³ 3.000E+01 ³              ---
³ ED
 R017 ³ Shielding factor, inhalation                    ³ 4.000E-01 ³ 4.000E-01 ³              ---
³ SHF3
 R017 ³ Shielding factor, external gamma                ³ 4.000E-01 ³ 7.000E-01 ³              ---
³ SHF1
 R017 ³ Fraction of time spent indoors                  ³ 0.000E+00 ³ 5.000E-01 ³              ---
³ FIND
 R017 ³ Fraction of time spent outdoors (on site)       ³ 7.700E-02 ³ 2.500E-01 ³              ---
³ FOTD
 R017 ³ Shape factor flag, external gamma               ³ 1.000E+00 ³ 1.000E+00 ³    >0 shows circular AREA.
³ FS
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 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
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                                    Site-Specific Parameter Summary (continued)
0     ³                                                 ³   User    ³           ³       Used by RESRAD
³  Parameter
 Menu ³                   Parameter                     ³   Input   ³  Default  ³ (If different from user input)
³    Name

ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R017 ³ Radii of shape factor array (used if FS = -1):  ³           ³           ³
³
 R017 ³   Outer annular radius (m), ring  1:            ³ not used  ³ 5.000E+01 ³              ---
³ RAD_SHAPE( 1)
 R017 ³   Outer annular radius (m), ring  2:            ³ not used  ³ 7.071E+01 ³              ---
³ RAD_SHAPE( 2)
 R017 ³   Outer annular radius (m), ring  3:            ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 3)
 R017 ³   Outer annular radius (m), ring  4:            ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 4)
 R017 ³   Outer annular radius (m), ring  5:            ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 5)
```

```
 R017 ³   Outer annular radius (m), ring  6:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 6)
 R017 ³   Outer annular radius (m), ring  7:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 7)
 R017 ³   Outer annular radius (m), ring  8:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 8)
 R017 ³   Outer annular radius (m), ring  9:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 9)
 R017 ³   Outer annular radius (m), ring 10:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE(10)
 R017 ³   Outer annular radius (m), ring 11:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE(11)
 R017 ³   Outer annular radius (m), ring 12:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE(12)
      ³                                                  ³           ³           ³
³
 R017 ³ Fractions of annular areas within AREA:          ³           ³           ³
³
 R017 ³   Ring  1                                        ³ not used  ³ 1.000E+00 ³              ---
³ FRACA( 1)
 R017 ³   Ring  2                                        ³ not used  ³ 2.732E-01 ³              ---
³ FRACA( 2)
 R017 ³   Ring  3                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 3)
 R017 ³   Ring  4                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 4)
 R017 ³   Ring  5                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 5)
 R017 ³   Ring  6                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 6)
 R017 ³   Ring  7                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 7)
 R017 ³   Ring  8                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 8)
 R017 ³   Ring  9                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 9)
 R017 ³   Ring 10                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA(10)
 R017 ³   Ring 11                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA(11)
 R017 ³   Ring 12                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA(12)
      ³                                                  ³           ³           ³
³
```

```
 R018 ³ Fruits, vegetables and grain consumption (kg/yr) ³ not used  ³ 1.600E+02 ³              ---
³ DIET(1)
 R018 ³ Leafy vegetable consumption (kg/yr)              ³ not used  ³ 1.400E+01 ³              ---
³ DIET(2)
 R018 ³ Milk consumption (L/yr)                          ³ not used  ³ 9.200E+01 ³              ---
³ DIET(3)
 R018 ³ Meat and poultry consumption (kg/yr)             ³ not used  ³ 6.300E+01 ³              ---
³ DIET(4)
 R018 ³ Fish consumption (kg/yr)                         ³ not used  ³ 5.400E+00 ³              ---
³ DIET(5)
 R018 ³ Other seafood consumption (kg/yr)                ³ not used  ³ 9.000E-01 ³              ---
³ DIET(6)
 R018 ³ Soil ingestion rate (g/yr)                       ³ 3.650E+01 ³ 3.650E+01 ³              ---
³ SOIL
 R018 ³ Drinking water intake (L/yr)                     ³ not used  ³ 5.100E+02 ³              ---
³ DWI
 R018 ³ Contamination fraction of drinking water         ³ not used  ³ 1.000E+00 ³              ---
³ FDW
 R018 ³ Contamination fraction of household water        ³ not used  ³ 1.000E+00 ³              ---
³ FHHW
 R018 ³ Contamination fraction of livestock water        ³ not used  ³ 1.000E+00 ³              ---
³ FLW
 R018 ³ Contamination fraction of irrigation water       ³ not used  ³ 1.000E+00 ³              ---
³ FIRW
 R018 ³ Contamination fraction of aquatic food           ³ not used  ³ 5.000E-01 ³              ---
³ FR9
 R018 ³ Contamination fraction of plant food             ³ not used  ³-1         ³              ---
³ FPLANT
 R018 ³ Contamination fraction of meat                   ³ not used  ³-1         ³              ---
³ FMEAT
 R018 ³ Contamination fraction of milk                   ³ not used  ³-1         ³              ---
³ FMILK
      ³                                                  ³           ³           ³
³
 R019 ³ Livestock fodder intake for meat (kg/day)        ³ not used  ³ 6.800E+01 ³              ---
³ LFI5
 R019 ³ Livestock fodder intake for milk (kg/day)        ³ not used  ³ 5.500E+01 ³              ---
³ LFI6
 R019 ³ Livestock water intake for meat (L/day)          ³ not used  ³ 5.000E+01 ³              ---
³ LWI5
 R019 ³ Livestock water intake for milk (L/day)          ³ not used  ³ 1.600E+02 ³              ---
³ LWI6
 R019 ³ Livestock soil intake (kg/day)                   ³ not used  ³ 5.000E-01 ³              ---
³ LSI
```

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	not used	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	not used	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	not used	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	not used	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	not used	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	not used	1.000E+00	---	TIV(2)

```
 R19B ³ Translocation Factor for  Fodder                ³ not used  ³ 1.000E+00 ³              ---
³ TIV(3)
 R19B ³ Dry Foliar Interception Fraction for  Non-Leafy  ³ not used  ³ 2.500E-01 ³              ---
³ RDRY(1)
 R19B ³ Dry Foliar Interception Fraction for  Leafy      ³ not used  ³ 2.500E-01 ³              ---
³ RDRY(2)
 R19B ³ Dry Foliar Interception Fraction for  Fodder     ³ not used  ³ 2.500E-01 ³              ---
³ RDRY(3)
 R19B ³ Wet Foliar Interception Fraction for  Non-Leafy  ³ not used  ³ 2.500E-01 ³              ---
³ RWET(1)
 R19B ³ Wet Foliar Interception Fraction for  Leafy      ³ not used  ³ 2.500E-01 ³              ---
³ RWET(2)
 R19B ³ Wet Foliar Interception Fraction for  Fodder     ³ not used  ³ 2.500E-01 ³              ---
³ RWET(3)
 R19B ³ Weathering Removal Constant for Vegetation       ³ not used  ³ 2.000E+01 ³              ---
³ WLAM
      ³                                                 ³           ³           ³
³
 C14  ³ C-12 concentration in water (g/cm**3)           ³ not used  ³ 2.000E-05 ³              ---
³ C12WTR
 C14  ³ C-12 concentration in contaminated soil (g/g)    ³ not used  ³ 3.000E-02 ³              ---
³ C12CZ
 C14  ³ Fraction of vegetation carbon from soil          ³ not used  ³ 2.000E-02 ³              ---
³ CSOIL
 C14  ³ Fraction of vegetation carbon from air           ³ not used  ³ 9.800E-01 ³              ---
³ CAIR
 C14  ³ C-14 evasion layer thickness in soil (m)         ³ not used  ³ 3.000E-01 ³              ---
³ DMC
 C14  ³ C-14 evasion flux rate from soil (1/sec)         ³ not used  ³ 7.000E-07 ³              ---
³ EVSN
 C14  ³ C-12 evasion flux rate from soil (1/sec)         ³ not used  ³ 1.000E-10 ³              ---
³ REVSN
 C14  ³ Fraction of grain in beef cattle feed            ³ not used  ³ 8.000E-01 ³              ---
³ AVFG4
 C14  ³ Fraction of grain in milk cow feed               ³ not used  ³ 2.000E-01 ³              ---
³ AVFG5
      ³                                                 ³           ³           ³
³
 STOR ³ Storage times of contaminated foodstuffs (days): ³           ³           ³
³
 STOR ³   Fruits, non-leafy vegetables, and grain        ³ 1.400E+01 ³ 1.400E+01 ³              ---
³ STOR_T(1)
 STOR ³   Leafy vegetables                               ³ 1.000E+00 ³ 1.000E+00 ³              ---
³ STOR_T(2)
```

```
 STOR ³   Milk                                        ³ 1.000E+00 ³ 1.000E+00 ³              ---
³ STOR_T(3)
 STOR ³   Meat and poultry                            ³ 2.000E+01 ³ 2.000E+01 ³              ---
³ STOR_T(4)
 STOR ³   Fish                                        ³ 7.000E+00 ³ 7.000E+00 ³              ---
³ STOR_T(5)
 STOR ³   Crustacea and mollusks                      ³ 7.000E+00 ³ 7.000E+00 ³              ---
³ STOR_T(6)
 STOR ³   Well water                                  ³ 1.000E+00 ³ 1.000E+00 ³              ---
³ STOR_T(7)
 STOR ³   Surface water                               ³ 1.000E+00 ³ 1.000E+00 ³              ---
³ STOR_T(8)
 STOR ³   Livestock fodder                            ³ 4.500E+01 ³ 4.500E+01 ³              ---
³ STOR_T(9)
      ³                                               ³           ³           ³
³
 R021 ³ Thickness of building foundation (m)          ³ not used  ³ 1.500E-01 ³              ---
³ FLOOR1
 R021 ³ Bulk density of building foundation (g/cm**3) ³ not used  ³ 2.400E+00 ³              ---
³ DENSFL
 R021 ³ Total porosity of the cover material          ³ not used  ³ 4.000E-01 ³              ---
³ TPCV
 R021 ³ Total porosity of the building foundation     ³ not used  ³ 1.000E-01 ³              ---
³ TPFL
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  11
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                                     Site-Specific Parameter Summary (continued)
0     ³                                               ³   User    ³           ³         Used by RESRAD
³  Parameter
 Menu ³                  Parameter                    ³   Input   ³  Default  ³ (If different from user input)
³    Name

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 R021 ³ Volumetric water content of the cover material   ³ not used  ³ 5.000E-02 ³              ---
³ PH2OCV
 R021 ³ Volumetric water content of the foundation       ³ not used  ³ 3.000E-02 ³              ---
³ PH2OFL
 R021 ³ Diffusion coefficient for radon gas (m/sec):     ³           ³           ³
³
 R021 ³   in cover material                           ³ not used  ³ 2.000E-06 ³              ---
³ DIFCV
```

```
 R021 ³   in foundation material                       ³ not used  ³ 3.000E-07 ³                ---
³ DIFFL
 R021 ³   in contaminated zone soil                    ³ not used  ³ 2.000E-06 ³                ---
³ DIFCZ
 R021 ³ Radon vertical dimension of mixing (m)         ³ not used  ³ 2.000E+00 ³                ---
³ HMIX
 R021 ³ Average building air exchange rate (1/hr)      ³ not used  ³ 5.000E-01 ³                ---
³ REXG
 R021 ³ Height of the building (room) (m)              ³ not used  ³ 2.500E+00 ³                ---
³ HRM
 R021 ³ Building interior area factor                  ³ not used  ³ 0.000E+00 ³                ---
³ FAI
 R021 ³ Building depth below ground surface (m)        ³ not used  ³-1.000E+00 ³                ---
³ DMFL
 R021 ³ Emanating power of Rn-222 gas                  ³ not used  ³ 2.500E-01 ³                ---
³ EMANA(1)
 R021 ³ Emanating power of Rn-220 gas                  ³ not used  ³ 1.500E-01 ³                ---
³ EMANA(2)
      ³                                                ³           ³           ³
³
 TITL ³ Number of graphical time points                ³     32    ³    ---    ³                ---
³ NPTS
 TITL ³ Maximum number of integration points for dose  ³     17    ³    ---    ³                ---
³ LYMAX
 TITL ³ Maximum number of integration points for risk  ³    257    ³    ---    ³                ---
³ KYMAX

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                      Summary of Pathway Selections

                     Pathway             ³   User Selection
           ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
              1 -- external gamma        ³       active
              2 -- inhalation (w/o radon)³       active
              3 -- plant ingestion       ³     suppressed
              4 -- meat ingestion        ³     suppressed
              5 -- milk ingestion        ³     suppressed
              6 -- aquatic foods         ³     suppressed
              7 -- drinking water        ³     suppressed
              8 -- soil ingestion        ³       active
```

```
             9 -- radon                    ³     suppressed
             Find peak pathway doses    ³       active
          ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  12
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      Contaminated Zone Dimensions            Initial Soil Concentrations, pCi/g
      ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ            ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
        Area:  10000.00 square meters                Ac-227     1.000E+00
   Thickness:      2.00 meters                       Pa-231     1.000E+00

 Cover Depth:      0.60 meters                       Pb-210     1.000E+00

                                                     Ra-226     1.000E+00
                                                     Ra-228     1.000E+00
                                                     Th-228     1.000E+00
                                                     Th-230     1.000E+00
                                                     Th-232     1.000E+00
                                                     U-234      1.000E+00
                                                     U-235      1.000E+00
                                                     U-238      1.000E+00
0
                                                 Total Dose TDOSE(t), mrem/yr

                                           Basic Radiation Dose Limit = 2.500E+01 mrem/yr

                          Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

                          ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

    t (years):  0.000E+00  1.000E+00  1.000E+01  3.000E+01  1.000E+02  3.000E+02  6.000E+02  7.500E+02  1.000E+03
2.300E+03
     TDOSE(t):  3.095E-03  3.127E-03  3.428E-03  4.207E-03  8.657E-03  7.124E-02  2.359E+00  2.355E+00  2.348E+00
2.280E+00
         M(t):  1.238E-04  1.251E-04  1.371E-04  1.683E-04  3.463E-04  2.850E-03  9.438E-02  9.420E-02  9.391E-02
9.120E-02
0Maximum TDOSE(t):  2.366E+00 mrem/yr   at t =     599 ñ 1 years
0
                         Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                            As mrem/yr and Fraction of Total Dose At t = 5.988E+02 years
0                                              Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon              Plant               Meat               Milk
```

```
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 Nuclide
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  7.463E-10 0.0000  1.652E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.107E-10 0.0000
 Pa-231  1.563E-01 0.0661  3.764E-02 0.0159  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.921E-02 0.0292
 Pb-210  3.268E-12 0.0000  8.477E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.541E-10 0.0000
 Ra-226  6.252E-01 0.2642  1.188E-04 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.864E-02 0.0079
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  1.847E-01 0.0780  1.589E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.737E-03 0.0028
 Th-232  1.170E+00 0.4946  9.547E-03 0.0040  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.385E-02 0.0059
 U-234   5.420E-04 0.0002  6.296E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.939E-04 0.0003
 U-235   5.587E-02 0.0236  1.037E-03 0.0004  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.582E-03 0.0007
 U-238   1.075E-02 0.0045  5.575E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.354E-04 0.0003
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 Total   2.204E+00 0.9313  5.112E-02 0.0216  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.115E-01 0.0471
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                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                        As mrem/yr and Fraction of Total Dose At t = 5.988E+02 years
0                                                   Water Dependent Pathways
0              Water              Fish              Radon             Plant             Meat              Milk
    All Pathways*
```

```
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 Nuclide
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.122E-09 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.632E-01 0.1112
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.582E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.439E-01 0.2721
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.930E-01 0.0816
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.194E+00 0.5044
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.966E-03 0.0008
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.849E-02 0.0247
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.205E-02 0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.366E+00 1.0000
0*Sum of all water independent and dependent pathways.
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                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                        As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0                                          Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
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 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  6.778E-06 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  5.113E-07 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  2.641E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  8.162E-04 0.2637  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  5.404E-04 0.1746  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  1.701E-03 0.5496  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  1.771E-07 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  2.709E-05 0.0088  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   1.125E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   2.114E-07 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   2.744E-06 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Total   3.095E-03 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.778E-06 0.0022
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.113E-07 0.0002
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.641E-09 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.162E-04 0.2637
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.404E-04 0.1746
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.701E-03 0.5496
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.771E-07 0.0001
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.709E-05 0.0088
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.125E-12 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.114E-07 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.744E-06 0.0009
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.095E-03 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  15
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                       As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  6.669E-06 0.0021  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  7.358E-07 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  2.604E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  8.251E-04 0.2639  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  9.741E-04 0.3115  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  1.195E-03 0.3822  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  5.366E-07 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  1.214E-04 0.0388  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   4.370E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   2.158E-07 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   2.782E-06 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.127E-03 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                    Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                              As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.669E-06 0.0021
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.358E-07 0.0002
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  2.604E-09 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.251E-04 0.2639
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.741E-04 0.3115
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.195E-03 0.3822
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.366E-07 0.0002
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.214E-04 0.0388
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.370E-12 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.158E-07 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.782E-06 0.0009
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.127E-03 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  16
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  5.764E-06 0.0017  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  2.766E-06 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  2.297E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Ra-226  9.096E-04 0.2653  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  9.451E-04 0.2757  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  4.994E-05 0.0146  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  4.147E-06 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  1.507E-03 0.4397  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   1.971E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   2.603E-07 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   3.139E-06 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.428E-03 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.764E-06 0.0017
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.766E-06 0.0008
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.297E-09 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.096E-04 0.2653
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.451E-04 0.2757
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  4.994E-05 0.0146
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.147E-06 0.0012
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.507E-03 0.4397
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.971E-10 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.603E-07 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.139E-06 0.0009
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.428E-03 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  17
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  4.170E-06 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  7.517E-06 0.0018  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  1.743E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  1.130E-03 0.2685  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.111E-04 0.0264  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  4.305E-08 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Th-230  1.503E-05 0.0036  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  2.935E-03 0.6976  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   2.068E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   3.959E-07 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   4.109E-06 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   4.207E-03 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
0                                                     Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.170E-06 0.0010
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.517E-06 0.0018
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.743E-09 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.130E-03 0.2685
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.111E-04 0.0264
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.305E-08 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.503E-05 0.0036
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.935E-03 0.6976
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  2.068E-09 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.959E-07 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.109E-06 0.0010
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.207E-03 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  18
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.356E-06 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  3.413E-05 0.0039  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  6.840E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  2.415E-03 0.2790  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  4.772E-08 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  8.105E-19 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  1.074E-04 0.0124  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  6.086E-03 0.7031  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   4.890E-08 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 U-235   1.723E-06 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   1.054E-05 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   8.657E-03 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.356E-06 0.0002
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.413E-05 0.0039
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.840E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.415E-03 0.2790
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.772E-08 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.105E-19 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.074E-04 0.0124
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.086E-03 0.7031
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.890E-08 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.723E-06 0.0002
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.054E-05 0.0012
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.657E-03 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  19
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  5.950E-08 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  9.188E-04 0.0129  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  5.749E-11 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  2.136E-02 0.2999  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.179E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.964E-03 0.0416  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  4.573E-02 0.6419  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   4.088E-06 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   1.096E-04 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   1.556E-04 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Total   7.124E-02 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                                     Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.950E-08 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.188E-04 0.0129
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.749E-11 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.136E-02 0.2999
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.179E-17 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.964E-03 0.0416
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.573E-02 0.6419
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.088E-06 0.0001
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.096E-04 0.0015
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.556E-04 0.0022
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.124E-02 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  20
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
```

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 6.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0

Radio- Nuclide	Ground Soil mrem/yr	fract.	Inhalation mrem/yr	fract.	Radon mrem/yr	fract.	Plant mrem/yr	fract.	Meat mrem/yr	fract.	Milk mrem/yr	fract.
Ac-227	7.199E-10	0.0000	1.599E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	1.565E-01	0.0663	3.780E-02	0.0160	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	3.294E-12	0.0000	8.214E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	6.223E-01	0.2637	1.193E-04	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	1.842E-01	0.0781	1.596E-03	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.166E+00	0.4941	9.589E-03	0.0041	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	5.457E-04	0.0002	6.323E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	5.613E-02	0.0238	1.042E-03	0.0004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.076E-02	0.0046	5.599E-04	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	2.196E+00	0.9308	5.134E-02	0.0218	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 6.000E+02 years

```
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.084E-09 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.638E-01 0.1118
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.534E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.411E-01 0.2717
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.926E-01 0.0816
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.189E+00 0.5040
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.975E-03 0.0008
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.876E-02 0.0249
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.206E-02 0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.359E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  21
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  As mrem/yr and Fraction of Total Dose At t = 7.500E+02 years
0                                    Water Independent Pathways (Inhalation excludes radon)
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```
0              Ground          Inhalation           Radon              Plant              Meat               Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  6.049E-12 0.0000  1.344E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.714E-12 0.0000
 Pa-231  1.554E-01 0.0660  3.755E-02 0.0159  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.904E-02 0.0293
 Pb-210  3.057E-14 0.0000  7.622E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.386E-12 0.0000
 Ra-226  5.825E-01 0.2473  1.116E-04 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.752E-02 0.0074
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.227E-01 0.0946  1.598E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.931E-03 0.0034
 Th-232  1.164E+00 0.4941  9.573E-03 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.388E-02 0.0059
 U-234   8.164E-04 0.0003  6.304E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.022E-04 0.0003
 U-235   5.628E-02 0.0239  1.155E-03 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.801E-03 0.0008
 U-238   1.069E-02 0.0045  5.568E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.345E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.192E+00 0.9308  5.117E-02 0.0217  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.117E-01 0.0474
0
```

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 7.500E+02 years

```
0                                                  Water Dependent Pathways
0              Water             Fish               Radon              Plant              Meat               Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
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fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.106E-12 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.620E-01 0.1112
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.424E-12 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.001E-01 0.2548
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.323E-01 0.0986
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.187E+00 0.5041
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.249E-03 0.0010
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.924E-02 0.0252
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.199E-02 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.355E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  22
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                       As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  2.100E-15 0.0000  4.666E-16 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.952E-16 0.0000
 Pa-231  1.537E-01 0.0655  3.713E-02 0.0158  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.827E-02 0.0291
 Pb-210  1.253E-17 0.0000  3.124E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.679E-16 0.0000
 Ra-226  5.218E-01 0.2222  1.000E-04 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.569E-02 0.0067
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.812E-01 0.1198  1.602E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.683E-03 0.0041
 Th-232  1.161E+00 0.4943  9.546E-03 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.384E-02 0.0059
 U-234   1.373E-03 0.0006  6.273E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.134E-04 0.0003
 U-235   5.654E-02 0.0241  1.340E-03 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.144E-03 0.0009
 U-238   1.059E-02 0.0045  5.517E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.278E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.186E+00 0.9310  5.089E-02 0.0217  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.112E-01 0.0474
0
                    Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                              As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                                   Water Dependent Pathways
0              Water              Fish               Radon              Plant              Meat               Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.162E-15 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  2.591E-01 0.1103
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.836E-16 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.376E-01 0.2290
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.925E-01 0.1246
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.184E+00 0.5043
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.814E-03 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.002E-02 0.0256
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.187E-02 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.348E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  23
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 2.300E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  1.466E-01 0.0643  3.502E-02 0.0154  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.440E-02 0.0282
```

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 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  2.913E-01 0.1278  5.642E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.854E-03 0.0039
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  4.894E-01 0.2146  1.603E-03 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.607E-02 0.0070
 Th-232  1.121E+00 0.4915  9.410E-03 0.0041  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.365E-02 0.0060
 U-234   5.790E-03 0.0025  6.115E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.200E-04 0.0004
 U-235   5.832E-02 0.0256  2.238E-03 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.812E-03 0.0017
 U-238   1.011E-02 0.0044  5.259E-04 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.940E-04 0.0003
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.122E+00 0.9308  4.947E-02 0.0217  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.084E-01 0.0475
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 2.300E+03 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.460E-01 0.1079
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.002E-01 0.1317
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.070E-01 0.2224
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.144E+00 0.5016
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.322E-03 0.0032
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.437E-02 0.0282
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.133E-02 0.0050
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.280E+00 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  24
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                                        Dose/Source Ratios Summed Over All Pathways

                                 Parent and Progeny Principal Radionuclide Contributions Indicated

0  Parent    Product    Thread                                DSR(j,t) At Time in Years   (mrem/yr)/(pCi/g)

    (i)        (j)     Fraction   0.000E+00 1.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 6.000E+02 7.500E+02
1.000E+03 2.300E+03
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 Ac-227+D   Ac-227+D   1.000E+00  6.778E-06 6.669E-06 5.764E-06 4.170E-06 1.356E-06 5.950E-08 1.084E-09 9.106E-12
3.162E-15 3.269E-33
0Pa-231     Pa-231     1.000E+00  4.026E-07 4.096E-07 4.789E-07 6.776E-07 2.283E-06 7.345E-05 4.855E-02 4.822E-02
4.769E-02 4.514E-02
 Pa-231     Ac-227+D   1.000E+00  1.087E-07 3.262E-07 2.287E-06 6.839E-06 3.185E-05 8.453E-04 2.152E-01 2.138E-01
2.114E-01 2.008E-01
 Pa-231     äDSR(j)               5.113E-07 7.358E-07 2.766E-06 7.517E-06 3.413E-05 9.188E-04 2.638E-01 2.620E-01
2.591E-01 2.460E-01
0Pb-210+D   Pb-210+D   1.000E+00  2.641E-09 2.604E-09 2.297E-09 1.743E-09 6.840E-10 5.749E-11 1.534E-10 1.424E-12
5.836E-16 1.418E-33
0Ra-226+D   Ra-226+D   1.000E+00  8.162E-04 8.251E-04 9.096E-04 1.130E-03 2.415E-03 2.136E-02 6.248E-01 5.849E-01
5.239E-01 2.925E-01
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 Ra-226+D   Pb-210+D   1.000E+00  4.137E-11 1.243E-10 8.849E-10 2.740E-09 1.452E-08 6.002E-07 1.630E-02 1.526E-02
1.367E-02 7.714E-03
 Ra-226+D   äDSR(j)               8.162E-04 8.251E-04 9.096E-04 1.130E-03 2.415E-03 2.136E-02 6.411E-01 6.001E-01
5.376E-01 3.002E-01
0Ra-228+D   Ra-228+D   1.000E+00  2.263E-04 2.031E-04 7.676E-05 8.834E-06 4.568E-09 1.862E-18 1.590E-32 2.228E-40
0.000E+00 0.000E+00
 Ra-228+D   Th-228+D   1.000E+00  3.141E-04 7.710E-04 8.683E-04 1.023E-04 4.315E-08 9.931E-18 4.051E-32 5.678E-40
0.000E+00 0.000E+00
 Ra-228+D   äDSR(j)               5.404E-04 9.741E-04 9.451E-04 1.111E-04 4.772E-08 1.179E-17 5.641E-32 7.906E-40
0.000E+00 0.000E+00
0Th-228+D   Th-228+D   1.000E+00  1.701E-03 1.195E-03 4.994E-05 4.305E-08 8.105E-19 0.000E+00 0.000E+00 0.000E+00
0.000E+00 0.000E+00
0Th-230     Th-230     1.000E+00  3.998E-12 4.112E-12 5.292E-12 9.269E-12 6.594E-11 1.794E-08 3.172E-03 3.162E-03
3.147E-03 3.066E-03
 Th-230     Ra-226+D   1.000E+00  1.771E-07 5.366E-07 4.147E-06 1.503E-05 1.074E-04 2.964E-03 1.849E-01 2.236E-01
2.823E-01 4.913E-01
 Th-230     Pb-210+D   1.000E+00  5.998E-15 4.223E-14 2.126E-12 2.099E-11 4.656E-10 7.383E-08 4.532E-03 5.542E-03
7.076E-03 1.268E-02
 Th-230     äDSR(j)               1.771E-07 5.366E-07 4.147E-06 1.503E-05 1.074E-04 2.964E-03 1.926E-01 2.323E-01
2.925E-01 5.070E-01
0Th-232     Th-232     1.000E+00  2.463E-13 2.541E-13 3.364E-13 6.278E-13 5.571E-12 2.851E-09 1.556E-02 1.554E-02
1.549E-02 1.527E-02
 Th-232     Ra-228+D   1.000E+00  1.394E-05 4.014E-05 1.953E-04 3.401E-04 8.334E-04 1.003E-02 4.346E-01 4.339E-01
4.327E-01 4.250E-01
 Th-232     Th-228+D   1.000E+00  1.314E-05 8.129E-05 1.312E-03 2.595E-03 5.253E-03 3.570E-02 7.390E-01 7.377E-01
7.357E-01 7.034E-01
 Th-232     äDSR(j)               2.709E-05 1.214E-04 1.507E-03 2.935E-03 6.086E-03 4.573E-02 1.189E+00 1.187E+00
1.184E+00 1.144E+00
0U-234      U-234      1.000E+00  5.930E-13 6.105E-13 7.930E-13 1.418E-12 1.084E-11 3.621E-09 1.428E-03 1.419E-03
1.404E-03 1.328E-03
 U-234      Th-230     1.000E+00  1.808E-17 5.561E-17 5.002E-16 2.544E-15 5.959E-14 4.836E-11 1.703E-05 2.118E-05
2.802E-05 6.186E-05
 U-234      Ra-226+D   1.000E+00  5.320E-13 3.760E-12 1.963E-10 2.067E-09 4.889E-08 4.084E-06 5.183E-04 7.902E-04
1.349E-03 5.785E-03
 U-234      Pb-210+D   1.000E+00  1.353E-20 2.046E-19 6.890E-17 2.066E-15 1.695E-13 9.196E-11 1.204E-05 1.875E-05
3.271E-05 1.470E-04
 U-234      äDSR(j)               1.125E-12 4.370E-12 1.971E-10 2.068E-09 4.890E-08 4.088E-06 1.975E-03 2.249E-03
2.814E-03 7.322E-03
0U-235+D    U-235+D    1.000E+00  2.114E-07 2.158E-07 2.599E-07 3.929E-07 1.669E-06 1.043E-04 5.555E-02 5.521E-02
5.466E-02 5.247E-02
 U-235+D    Pa-231     1.000E+00  4.271E-12 1.301E-11 1.064E-10 4.373E-10 4.856E-09 4.674E-07 6.177E-04 7.672E-04
1.012E-03 2.210E-03
 U-235+D    Ac-227+D   1.000E+00  7.700E-13 5.414E-12 2.684E-10 2.559E-09 4.944E-08 4.816E-06 2.595E-03 3.258E-03
4.344E-03 9.695E-03
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 U-235+D    äDSR(j)                2.114E-07 2.158E-07 2.603E-07 3.959E-07 1.723E-06 1.096E-04 5.876E-02 5.924E-02
6.002E-02 6.437E-02
0U-238      U-238      5.400E-05  2.740E-27 2.923E-27 5.221E-27 1.895E-26 1.727E-24 6.858E-19 6.836E-08 6.795E-08
6.728E-08 6.386E-08
0U-238+D    U-238+D    9.999E-01  2.744E-06 2.782E-06 3.139E-06 4.109E-06 1.054E-05 1.556E-04 1.205E-02 1.198E-02
1.186E-02 1.130E-02
 U-238+D    U-234      9.999E-01  8.446E-19 2.600E-18 2.361E-17 1.226E-16 3.089E-15 3.086E-12 2.433E-06 3.022E-06
3.987E-06 8.688E-06
 U-238+D    Th-230     9.999E-01  1.712E-23 1.228E-22 7.452E-21 1.100E-19 8.487E-18 2.058E-14 1.447E-08 2.249E-08
3.962E-08 2.004E-07
 U-238+D    Ra-226+D   9.999E-01  3.773E-19 5.713E-18 1.951E-15 5.964E-14 4.658E-12 1.171E-09 2.996E-07 5.735E-07
1.315E-06 1.343E-05
 U-238+D    Pb-210+D   9.999E-01  7.686E-27 2.405E-25 5.222E-22 4.665E-20 1.354E-17 2.411E-14 6.622E-09 1.306E-08
3.089E-08 3.362E-07
 U-238+D    äDSR(j)                2.744E-06 2.782E-06 3.139E-06 4.109E-06 1.054E-05 1.556E-04 1.206E-02 1.199E-02
1.187E-02 1.133E-02
 ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ
 The DSR includes contributions from associated (half-life ó 180 days) daughters.

1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  25
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                                    Single Radionuclide Soil Guidelines G(i,t) in pCi/g

                                       Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide
   (i)    t= 0.000E+00   1.000E+00   1.000E+01   3.000E+01   1.000E+02   3.000E+02   6.000E+02   7.500E+02
1.000E+03   2.300E+03
 ÄÄÄÄÄÄÄ     ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ
 Ac-227      3.688E+06   3.749E+06   4.338E+06   5.995E+06   1.844E+07   4.202E+08   2.307E+10   2.745E+12
*7.232E+13  *7.232E+13
 Pa-231      4.889E+07   3.398E+07   9.037E+06   3.326E+06   7.325E+05   2.721E+04   9.478E+01   9.542E+01
9.650E+01   1.016E+02
 Pb-210      9.467E+09   9.600E+09   1.088E+10   1.434E+10   3.655E+10   4.349E+11   1.629E+11   1.756E+13
*7.634E+13  *7.634E+13
 Ra-226      3.063E+04   3.030E+04   2.748E+04   2.213E+04   1.035E+04   1.170E+03   3.900E+01   4.166E+01
4.651E+01   8.327E+01
 Ra-228      4.626E+04   2.567E+04   2.645E+04   2.250E+05   5.239E+08  *2.726E+14  *2.726E+14  *2.726E+14
*2.726E+14  *2.726E+14
 Th-228      1.470E+04   2.092E+04   5.006E+05   5.807E+08  *8.195E+14  *8.195E+14  *8.195E+14  *8.195E+14
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*8.195E+14  *8.195E+14
 Th-230      1.411E+08   4.659E+07   6.028E+06   1.664E+06   2.328E+05   8.434E+03   1.298E+02   1.076E+02
8.547E+01   4.931E+01
 Th-232     *1.097E+05  *1.097E+05   1.659E+04   8.517E+03   4.108E+03   5.467E+02   2.102E+01   2.106E+01
2.112E+01   2.186E+01
 U-234      *6.247E+09  *6.247E+09  *6.247E+09  *6.247E+09   5.113E+08   6.116E+06   1.266E+04   1.112E+04
8.885E+03   3.415E+03
 U-235      *2.161E+06  *2.161E+06  *2.161E+06  *2.161E+06  *2.161E+06   2.282E+05   4.255E+02   4.220E+02
4.165E+02   3.884E+02
 U-238      *3.361E+05  *3.361E+05  *3.361E+05  *3.361E+05  *3.361E+05   1.607E+05   2.074E+03   2.086E+03
2.107E+03   2.207E+03
 ÍÍÍÍÍÍÍ     ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ
 *At specific activity limit
0
             Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
             and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
          at tmin = time of minimum single radionuclide soil guideline
      and at tmax = time of maximum total dose =     599 ñ 1 years
0Nuclide  Initial         tmin       DSR(i,tmin) G(i,tmin) DSR(i,tmax) G(i,tmax)
   (i)    (pCi/g)       (years)                   (pCi/g)              (pCi/g)
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
 Ac-227  1.000E+00     0.000E+00      6.778E-06  3.688E+06  1.122E-09  2.228E+10
 Pa-231  1.000E+00      600 ñ 1       2.638E-01  9.478E+01  2.632E-01  9.499E+01
 Pb-210  1.000E+00     0.000E+00      2.641E-09  9.467E+09  1.582E-10  1.580E+11
 Ra-226  1.000E+00      599 ñ 1       6.439E-01  3.882E+01  6.439E-01  3.882E+01
 Ra-228  1.000E+00    3.990 ñ 0.008   1.362E-03  1.836E+04  0.000E+00 *2.726E+14
 Th-228  1.000E+00     0.000E+00      1.701E-03  1.470E+04  0.000E+00 *8.195E+14
 Th-230  1.000E+00     2.300E+03      5.070E-01  4.931E+01  1.930E-01  1.295E+02
 Th-232  1.000E+00      599 ñ 1       1.194E+00  2.094E+01  1.194E+00  2.094E+01
 U-234   1.000E+00     2.300E+03      7.322E-03  3.415E+03  1.966E-03  1.272E+04
 U-235   1.000E+00     2.300E+03      6.437E-02  3.884E+02  5.849E-02  4.274E+02
 U-238   1.000E+00      600 ñ 1       1.206E-02  2.074E+03  1.205E-02  2.075E+03
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
 *At specific activity limit

1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  26
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                                        Individual Nuclide Dose Summed Over All Pathways
                                          Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                                DOSE(j,t), mrem/yr
   (j)     (i)            t= 0.000E+00 1.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 6.000E+02 7.500E+02
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1.000E+03 2.300E+03
 ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    6.778E-06 6.669E-06 5.764E-06 4.170E-06 1.356E-06 5.950E-08 1.084E-09 9.106E-12
3.162E-15 0.000E+00
 Ac-227  Pa-231  1.000E+00    1.087E-07 3.262E-07 2.287E-06 6.839E-06 3.185E-05 8.453E-04 2.152E-01 2.138E-01
2.114E-01 2.008E-01
 Ac-227  U-235   1.000E+00    7.700E-13 5.414E-12 2.684E-10 2.559E-09 4.944E-08 4.816E-06 2.595E-03 3.258E-03
4.344E-03 9.695E-03
 Ac-227  äDOSE(j)             6.887E-06 6.995E-06 8.051E-06 1.101E-05 3.325E-05 8.502E-04 2.178E-01 2.170E-01
2.157E-01 2.105E-01
0Pa-231  Pa-231  1.000E+00    4.026E-07 4.096E-07 4.789E-07 6.776E-07 2.283E-06 7.345E-05 4.855E-02 4.822E-02
4.769E-02 4.514E-02
 Pa-231  U-235   1.000E+00    4.271E-12 1.301E-11 1.064E-10 4.373E-10 4.856E-09 4.674E-07 6.177E-04 7.672E-04
1.012E-03 2.210E-03
 Pa-231  äDOSE(j)             4.026E-07 4.096E-07 4.790E-07 6.780E-07 2.288E-06 7.392E-05 4.917E-02 4.899E-02
4.870E-02 4.735E-02
0Pb-210  Pb-210  1.000E+00    2.641E-09 2.604E-09 2.297E-09 1.743E-09 6.840E-10 5.749E-11 1.534E-10 1.424E-12
5.836E-16 0.000E+00
 Pb-210  Ra-226  1.000E+00    4.137E-11 1.243E-10 8.849E-10 2.740E-09 1.452E-08 6.002E-07 1.630E-02 1.526E-02
1.367E-02 7.714E-03
 Pb-210  Th-230  1.000E+00    5.998E-15 4.223E-14 2.126E-12 2.099E-11 4.656E-10 7.383E-08 4.532E-03 5.542E-03
7.076E-03 1.268E-02
 Pb-210  U-234   1.000E+00    1.353E-20 2.046E-19 6.890E-17 2.066E-15 1.695E-13 9.196E-11 1.204E-05 1.875E-05
3.271E-05 1.470E-04
 Pb-210  U-238   9.999E-01    7.686E-27 2.405E-25 5.222E-22 4.665E-20 1.354E-17 2.411E-14 6.622E-09 1.306E-08
3.089E-08 3.362E-07
 Pb-210  äDOSE(j)             2.682E-09 2.728E-09 3.184E-09 4.504E-09 1.567E-08 6.742E-07 2.085E-02 2.082E-02
2.078E-02 2.054E-02
0Ra-226  Ra-226  1.000E+00    8.162E-04 8.251E-04 9.096E-04 1.130E-03 2.415E-03 2.136E-02 6.248E-01 5.849E-01
5.239E-01 2.925E-01
 Ra-226  Th-230  1.000E+00    1.771E-07 5.366E-07 4.147E-06 1.503E-05 1.074E-04 2.964E-03 1.849E-01 2.236E-01
2.823E-01 4.913E-01
 Ra-226  U-234   1.000E+00    5.320E-13 3.760E-12 1.963E-10 2.067E-09 4.889E-08 4.084E-06 5.183E-04 7.902E-04
1.349E-03 5.785E-03
 Ra-226  U-238   9.999E-01    3.773E-19 5.713E-18 1.951E-15 5.964E-14 4.658E-12 1.171E-09 2.996E-07 5.735E-07
1.315E-06 1.343E-05
 Ra-226  äDOSE(j)             8.163E-04 8.256E-04 9.138E-04 1.145E-03 2.522E-03 2.433E-02 8.102E-01 8.092E-01
8.075E-01 7.896E-01
0Ra-228  Ra-228  1.000E+00    2.263E-04 2.031E-04 7.676E-05 8.834E-06 4.568E-09 1.862E-18 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Ra-228  Th-232  1.000E+00    1.394E-05 4.014E-05 1.953E-04 3.401E-04 8.334E-04 1.003E-02 4.346E-01 4.339E-01
4.327E-01 4.250E-01
 Ra-228  äDOSE(j)             2.402E-04 2.432E-04 2.720E-04 3.489E-04 8.334E-04 1.003E-02 4.346E-01 4.339E-01
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4.327E-01 4.250E-01
0Th-228  Ra-228  1.000E+00    3.141E-04 7.710E-04 8.683E-04 1.023E-04 4.315E-08 9.931E-18 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Th-228  Th-228  1.000E+00    1.701E-03 1.195E-03 4.994E-05 4.305E-08 8.105E-19 0.000E+00 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Th-228  Th-232  1.000E+00    1.314E-05 8.129E-05 1.312E-03 2.595E-03 5.253E-03 3.570E-02 7.390E-01 7.377E-01
7.357E-01 7.034E-01
 Th-228  äDOSE(j)            2.028E-03 2.047E-03 2.230E-03 2.697E-03 5.253E-03 3.570E-02 7.390E-01 7.377E-01
7.357E-01 7.034E-01
0Th-230  Th-230  1.000E+00    3.998E-12 4.112E-12 5.292E-12 9.269E-12 6.594E-11 1.794E-08 3.172E-03 3.162E-03
3.147E-03 3.066E-03
 Th-230  U-234   1.000E+00    1.808E-17 5.561E-17 5.002E-16 2.544E-15 5.959E-14 4.836E-11 1.703E-05 2.118E-05
2.802E-05 6.186E-05
 Th-230  U-238   9.999E-01    1.712E-23 1.228E-22 7.452E-21 1.100E-19 8.487E-18 2.058E-14 1.447E-08 2.249E-08
3.962E-08 2.004E-07
 Th-230  äDOSE(j)            3.998E-12 4.112E-12 5.292E-12 9.272E-12 6.600E-11 1.799E-08 3.189E-03 3.184E-03
3.175E-03 3.128E-03
0Th-232  Th-232  1.000E+00    2.463E-13 2.541E-13 3.364E-13 6.278E-13 5.571E-12 2.851E-09 1.556E-02 1.554E-02
1.549E-02 1.527E-02
0U-234   U-234   1.000E+00    5.930E-13 6.105E-13 7.930E-13 1.418E-12 1.084E-11 3.621E-09 1.428E-03 1.419E-03
1.404E-03 1.328E-03
 U-234   U-238   9.999E-01    8.446E-19 2.600E-18 2.361E-17 1.226E-16 3.089E-15 3.086E-12 2.433E-06 3.022E-06
3.987E-06 8.688E-06
 U-234   äDOSE(j)            5.930E-13 6.105E-13 7.930E-13 1.418E-12 1.084E-11 3.625E-09 1.431E-03 1.422E-03
1.408E-03 1.337E-03
0U-235   U-235   1.000E+00    2.114E-07 2.158E-07 2.599E-07 3.929E-07 1.669E-06 1.043E-04 5.555E-02 5.521E-02
5.466E-02 5.247E-02
0U-238   U-238   5.400E-05    2.740E-27 2.923E-27 5.221E-27 1.895E-26 1.727E-24 6.858E-19 6.836E-08 6.795E-08
6.728E-08 6.386E-08
 U-238   U-238   9.999E-01    2.744E-06 2.782E-06 3.139E-06 4.109E-06 1.054E-05 1.556E-04 1.205E-02 1.198E-02
1.186E-02 1.130E-02
 U-238   äDOSE(j)            2.744E-06 2.782E-06 3.139E-06 4.109E-06 1.054E-05 1.556E-04 1.205E-02 1.198E-02
1.186E-02 1.130E-02
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 THF(i) is the thread fraction of the parent nuclide.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:25  Page  27
 Summary : TTLF Recreational Youth 2 feet eroding cover Future Baseline
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECYOUTHCOV.RAD

                                          Individual Nuclide Soil Concentration
                                       Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                          S(j,t), pCi/g
   (j)     (i)             t= 0.000E+00 1.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 6.000E+02 7.500E+02
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1.000E+03 2.300E+03
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ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    1.000E+00 9.686E-01 7.272E-01 3.845E-01 4.133E-02 7.059E-05 4.984E-09 4.187E-11
1.454E-14 1.492E-32
 Ac-227  Pa-231  1.000E+00    0.000E+00 3.133E-02 2.726E-01 6.145E-01 9.547E-01 9.871E-01 9.740E-01 9.674E-01
9.567E-01 9.024E-01
 Ac-227  U-235   1.000E+00    0.000E+00 3.332E-07 3.036E-05 2.256E-04 1.473E-03 5.613E-03 1.173E-02 1.473E-02
1.965E-02 4.356E-02
 Ac-227  äS(j):               1.000E+00 1.000E+00 9.997E-01 9.992E-01 9.975E-01 9.928E-01 9.857E-01 9.822E-01
9.763E-01 9.460E-01
0Pa-231  Pa-231  1.000E+00    1.000E+00 1.000E+00 9.996E-01 9.987E-01 9.955E-01 9.866E-01 9.734E-01 9.669E-01
9.561E-01 9.019E-01
 Pa-231  U-235   1.000E+00    0.000E+00 2.116E-05 2.115E-04 6.339E-04 2.107E-03 6.267E-03 1.238E-02 1.537E-02
2.028E-02 4.414E-02
 Pa-231  äS(j):               1.000E+00 1.000E+00 9.998E-01 9.993E-01 9.976E-01 9.929E-01 9.858E-01 9.823E-01
9.764E-01 9.461E-01
0Pb-210  Pb-210  1.000E+00    1.000E+00 9.693E-01 7.320E-01 3.922E-01 4.416E-02 8.612E-05 7.417E-09 6.883E-11
2.821E-14 6.851E-32
 Pb-210  Ra-226  1.000E+00    0.000E+00 3.060E-02 2.664E-01 6.009E-01 9.224E-01 8.854E-01 7.759E-01 7.264E-01
6.506E-01 3.671E-01
 Pb-210  Th-230  1.000E+00    0.000E+00 6.662E-06 6.074E-04 4.518E-03 2.939E-02 1.087E-01 2.155E-01 2.636E-01
3.366E-01 6.030E-01
 Pb-210  U-234   1.000E+00    0.000E+00 2.004E-11 1.870E-08 4.367E-07 1.064E-05 1.351E-04 5.720E-04 8.912E-04
1.555E-03 6.989E-03
 Pb-210  U-238   9.999E-01    0.000E+00 1.423E-17 1.345E-13 9.692E-12 8.454E-10 3.536E-08 3.143E-07 6.204E-07
1.468E-06 1.598E-05
 Pb-210  äS(j):               1.000E+00 9.999E-01 9.990E-01 9.977E-01 9.959E-01 9.943E-01 9.920E-01 9.908E-01
9.888E-01 9.771E-01
0Ra-226  Ra-226  1.000E+00    1.000E+00 9.996E-01 9.956E-01 9.869E-01 9.569E-01 8.763E-01 7.679E-01 7.188E-01
6.439E-01 3.633E-01
 Ra-226  Th-230  1.000E+00    0.000E+00 4.331E-04 4.322E-03 1.291E-02 4.234E-02 1.214E-01 2.270E-01 2.745E-01
3.467E-01 6.100E-01
 Ra-226  U-234   1.000E+00    0.000E+00 1.950E-09 1.947E-07 1.746E-06 1.918E-05 1.669E-04 6.358E-04 9.697E-04
1.656E-03 7.180E-03
 Ra-226  U-238   9.999E-01    0.000E+00 1.842E-15 1.840E-12 4.955E-11 1.818E-09 4.778E-08 3.672E-07 7.032E-07
1.613E-06 1.666E-05
 Ra-226  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.978E-01 9.955E-01 9.943E-01
9.922E-01 9.804E-01
0Ra-228  Ra-228  1.000E+00    1.000E+00 8.864E-01 2.995E-01 2.687E-02 5.813E-06 1.964E-16 3.858E-32 5.407E-40
0.000E+00 0.000E+00
 Ra-228  Th-232  1.000E+00    0.000E+00 1.136E-01 7.004E-01 9.728E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
9.890E-01 9.749E-01
 Ra-228  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
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9.890E-01 9.749E-01
0Th-228  Ra-228  1.000E+00    0.000E+00 2.853E-01 4.089E-01 4.024E-02 8.711E-06 2.943E-16 5.781E-32 8.102E-40
0.000E+00 0.000E+00
 Th-228  Th-228  1.000E+00    1.000E+00 6.961E-01 2.670E-02 1.902E-05 1.838E-16 0.000E+00 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Th-228  Th-232  1.000E+00    0.000E+00 1.864E-02 5.643E-01 9.594E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
9.890E-01 9.749E-01
 Th-228  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
9.890E-01 9.749E-01
0Th-230  Th-230  1.000E+00    1.000E+00 1.000E+00 9.998E-01 9.994E-01 9.980E-01 9.940E-01 9.880E-01 9.851E-01
9.802E-01 9.549E-01
 Th-230  U-234   1.000E+00    0.000E+00 9.002E-06 8.999E-05 2.698E-04 8.974E-04 2.675E-03 5.300E-03 6.594E-03
8.723E-03 1.926E-02
 Th-230  U-238   9.999E-01    0.000E+00 1.276E-11 1.275E-09 1.147E-08 1.272E-07 1.137E-06 4.500E-06 6.995E-06
1.233E-05 6.238E-05
 Th-230  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.933E-01 9.917E-01
9.889E-01 9.743E-01
0Th-232  Th-232  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.934E-01 9.917E-01
9.890E-01 9.749E-01
0U-234   U-234   1.000E+00    1.000E+00 1.000E+00 9.996E-01 9.987E-01 9.957E-01 9.872E-01 9.746E-01 9.684E-01
9.580E-01 9.061E-01
 U-234   U-238   9.999E-01    0.000E+00 2.835E-06 2.834E-05 8.494E-05 2.823E-04 8.399E-04 1.659E-03 2.061E-03
2.720E-03 5.927E-03
 U-234   äS(j):               1.000E+00 1.000E+00 9.996E-01 9.988E-01 9.960E-01 9.881E-01 9.763E-01 9.704E-01
9.608E-01 9.120E-01
0U-235   U-235   1.000E+00    1.000E+00 1.000E+00 9.996E-01 9.988E-01 9.960E-01 9.881E-01 9.763E-01 9.704E-01
9.608E-01 9.120E-01
0U-238   U-238   5.400E-05    5.400E-05 5.400E-05 5.398E-05 5.394E-05 5.378E-05 5.336E-05 5.272E-05 5.240E-05
5.188E-05 4.925E-05
 U-238   U-238   9.999E-01    9.999E-01 9.999E-01 9.995E-01 9.987E-01 9.960E-01 9.880E-01 9.762E-01 9.704E-01
9.607E-01 9.120E-01
 U-238   äS(j):               1.000E+00 1.000E+00 9.996E-01 9.988E-01 9.960E-01 9.881E-01 9.763E-01 9.704E-01
9.608E-01 9.120E-01
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 THF(i) is the thread fraction of the parent nuclide.
0RESCALC.EXE execution time =   11.73 seconds
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Appendix G-9
RESRAD Risk Output for Trespasser Adult Future Baseline

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Table of Contents

Part III: Intake Quantities and Health Risk Factors

Cancer Risk Slope Factors 2
Risk Slope and ETFG for the Ground Pathway 4
Amount of Intake Quantities and Excess Cancer Risks
Time= 0.000E+00 5
Time= 1.000E+00 9
Time= 1.000E+01 13
Time= 3.000E+01 17
Time= 1.000E+02 21
Time= 3.000E+02 25
Time= 6.000E+02 29
Time= 7.500E+02 33
Time= 1.000E+03 37
Time= 2.300E+03 41

Cancer Risk Slope Factors Summary Table
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-1	Ground external radiation slope factors, 1/yr per (pCi/g):			
Sf-1	Ac-227+D	1.47E-06	3.48E-10	SLPF(1,1)
Sf-1	Pa-231	1.39E-07	1.39E-07	SLPF(2,1)
Sf-1	Pb-210+D	4.21E-09	1.41E-09	SLPF(3,1)
Sf-1	Ra-226+D	8.49E-06	2.29E-08	SLPF(4,1)
Sf-1	Ra-228+D	4.53E-06	0.00E+00	SLPF(5,1)
Sf-1	Th-228+D	7.76E-06	5.59E-09	SLPF(6,1)
Sf-1	Th-230	8.19E-10	8.19E-10	SLPF(7,1)
Sf-1	Th-232	3.42E-10	3.42E-10	SLPF(8,1)
Sf-1	U-234	2.52E-10	2.52E-10	SLPF(9,1)
Sf-1	U-235+D	5.43E-07	5.18E-07	SLPF(10,1)
Sf-1	U-238	4.99E-11	4.99E-11	SLPF(11,1)
Sf-1	U-238+D	1.14E-07	4.99E-11	SLPF(12,1)
Sf-2	Inhalation, slope factors, 1/(pCi):			
Sf-2	Ac-227+D	2.13E-07	1.49E-07	SLPF(1,2)
Sf-2	Pa-231	7.62E-08	7.62E-08	SLPF(2,2)

Sf-2	Pb-210+D	3.08E-08	1.58E-08	SLPF(3,2)
Sf-2	Ra-226+D	2.83E-08	2.82E-08	SLPF(4,2)
Sf-2	Ra-228+D	4.37E-08	4.37E-08	SLPF(5,2)
Sf-2	Th-228+D	1.44E-07	1.32E-07	SLPF(6,2)
Sf-2	Th-230	3.40E-08	3.40E-08	SLPF(7,2)
Sf-2	Th-232	4.33E-08	4.33E-08	SLPF(8,2)
Sf-2	U-234	2.78E-08	2.78E-08	SLPF(9,2)
Sf-2	U-235+D	2.50E-08	2.50E-08	SLPF(10,2)
Sf-2	U-238	2.36E-08	2.36E-08	SLPF(11,2)
Sf-2	U-238+D	2.36E-08	2.36E-08	SLPF(12,2)
Sf-3	Food ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	6.53E-10	2.45E-10	SLPF(1,3)
Sf-3	Pa-231	2.26E-10	2.26E-10	SLPF(2,3)
Sf-3	Pb-210+D	3.44E-09	1.18E-09	SLPF(3,3)
Sf-3	Ra-226+D	5.15E-10	5.14E-10	SLPF(4,3)
Sf-3	Ra-228+D	1.43E-09	1.43E-09	SLPF(5,3)
Sf-3	Th-228+D	4.22E-10	1.48E-10	SLPF(6,3)
Sf-3	Th-230	1.19E-10	1.19E-10	SLPF(7,3)
Sf-3	Th-232	1.33E-10	1.33E-10	SLPF(8,3)
Sf-3	U-234	9.55E-11	9.55E-11	SLPF(9,3)
Sf-3	U-235+D	9.76E-11	9.44E-11	SLPF(10,3)
Sf-3	U-238	8.66E-11	8.66E-11	SLPF(11,3)
Sf-3	U-238+D	1.21E-10	8.66E-11	SLPF(12,3)
Sf-3	Water ingestion, slope factors, 1/(pCi):			
Sf-3	Ac-227+D	4.86E-10	2.01E-10	SLPF(1,4)
Sf-3	Pa-231	1.73E-10	1.73E-10	SLPF(2,4)
Sf-3	Pb-210+D	2.66E-09	8.81E-10	SLPF(3,4)
Sf-3	Ra-226+D	3.86E-10	3.85E-10	SLPF(4,4)
Sf-3	Ra-228+D	1.04E-09	1.04E-09	SLPF(5,4)
Sf-3	Th-228+D	2.99E-10	1.07E-10	SLPF(6,4)
Sf-3	Th-230	9.10E-11	9.10E-11	SLPF(7,4)

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:32 Page 3
Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Cancer Risk Slope Factors Summary Table (continued)
Risk Library: FGR 13 Morbidity

0 Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-3	Th-232	1.01E-10	1.01E-10	SLPF(8,4)
Sf-3	U-234	7.07E-11	7.07E-11	SLPF(9,4)
Sf-3	U-235+D	7.18E-11	6.96E-11	SLPF(10,4)
Sf-3	U-238	6.40E-11	6.40E-11	SLPF(11,4)
Sf-3	U-238+D	8.71E-11	6.40E-11	SLPF(12,4)

```
 Sf-3  ³ Soil ingestion, slope factors, 1/(pCi):                          ³            ³            ³
 Sf-3  ³ Ac-227+D                                                         ³ 6.53E-10   ³ 2.45E-10   ³ SLPF(  1,5)
 Sf-3  ³ Pa-231                                                           ³ 2.26E-10   ³ 2.26E-10   ³ SLPF(  2,5)
 Sf-3  ³ Pb-210+D                                                         ³ 3.44E-09   ³ 1.18E-09   ³ SLPF(  3,5)
 Sf-3  ³ Ra-226+D                                                         ³ 5.15E-10   ³ 5.14E-10   ³ SLPF(  4,5)
 Sf-3  ³ Ra-228+D                                                         ³ 1.43E-09   ³ 1.43E-09   ³ SLPF(  5,5)
 Sf-3  ³ Th-228+D                                                         ³ 4.22E-10   ³ 1.48E-10   ³ SLPF(  6,5)
 Sf-3  ³ Th-230                                                           ³ 1.19E-10   ³ 1.19E-10   ³ SLPF(  7,5)
 Sf-3  ³ Th-232                                                           ³ 1.33E-10   ³ 1.33E-10   ³ SLPF(  8,5)
 Sf-3  ³ U-234                                                            ³ 9.55E-11   ³ 9.55E-11   ³ SLPF(  9,5)
 Sf-3  ³ U-235+D                                                          ³ 9.76E-11   ³ 9.44E-11   ³ SLPF( 10,5)
 Sf-3  ³ U-238                                                            ³ 8.66E-11   ³ 8.66E-11   ³ SLPF( 11,5)
 Sf-3  ³ U-238+D                                                          ³ 1.21E-10   ³ 8.66E-11   ³ SLPF( 12,5)
       ³                                                                  ³            ³            ³
 Sf-Rn ³ Radon Inhalation slope factors, 1/(pCi):                         ³            ³            ³
 Sf-Rn ³ Rn-222                                                           ³ 1.80E-12   ³ 1.80E-12   ³ SLPFRN(1,1)
 Sf-Rn ³ Po-218                                                           ³ 3.70E-12   ³ 3.70E-12   ³ SLPFRN(1,2)
 Sf-Rn ³ Pb-214                                                           ³ 6.20E-12   ³ 6.20E-12   ³ SLPFRN(1,3)
 Sf-Rn ³ Bi-214                                                           ³ 1.50E-11   ³ 1.50E-11   ³ SLPFRN(1,4)
 Sf-Rn ³ Rn-220                                                           ³ 1.90E-13   ³ 1.90E-13   ³ SLPFRN(2,1)
 Sf-Rn ³ Po-216                                                           ³ 3.00E-15   ³ 3.00E-15   ³ SLPFRN(2,2)
 Sf-Rn ³ Pb-212                                                           ³ 3.90E-11   ³ 3.90E-11   ³ SLPFRN(2,3)
 Sf-Rn ³ Bi-212                                                           ³ 3.70E-11   ³ 3.70E-11   ³ SLPFRN(2,4)
       ³                                                                  ³            ³            ³
 Sf-Rn ³ Radon K factors, (mrem/WLM):                                     ³            ³            ³
 Sf-Rn ³ Rn-222 Indoor                                                    ³ 7.60E+02   ³ 7.60E+02   ³ KFACTR(1,1)
 Sf-Rn ³ Rn-222 Outdoor                                                   ³ 5.70E+02   ³ 5.70E+02   ³ KFACTR(1,2)
 Sf-Rn ³ Rn-220 Indoor                                                    ³ 1.50E+02   ³ 1.50E+02   ³ KFACTR(2,1)
 Sf-Rn ³ Rn-220 Outdoor                                                   ³ 2.50E+02   ³ 2.50E+02   ³ KFACTR(2,2)
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 *Base Case means Default.Lib w/o Associate Nuclide contributions.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page   4
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                                           Risk Slope and Environmental Transport Factors for the Ground Pathway

0Nuclide  Slope(i)*                                         ETFG(i,t) At Time in Years  (dimensionless)

   (i)             t= 0.000E+00  1.000E+00  1.000E+01  3.000E+01  1.000E+02  3.000E+02  6.000E+02  7.500E+02
 1.000E+03  2.300E+03
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 Ac-227   3.480E-10   6.107E-09  6.255E-09  7.763E-09  1.255E-08  6.732E-08  8.180E-06  1.148E-02  1.148E-02
 1.148E-02  1.159E-02
 Ac-228   4.530E-06   6.224E-06  6.302E-06  7.049E-06  9.042E-06  2.161E-05  2.607E-04  1.130E-02  1.130E-02
 1.130E-02  1.126E-02
 At-218   3.570E-09   3.081E-17  3.257E-17  5.375E-17  1.636E-16  8.046E-15  5.486E-10  1.164E-02  1.164E-02
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	1.164E-02	1.164E-02									
Bi-210	2.760E-09	6.595E-08	6.728E-08	8.051E-08	1.200E-07	4.849E-07	2.621E-05	1.134E-02	1.134E-02	1.134E-02	1.153E-02
Bi-211	1.880E-07	4.293E-07	4.366E-07	5.086E-07	7.138E-07	2.338E-06	6.937E-05	1.134E-02	1.134E-02	1.134E-02	1.148E-02
Bi-212	8.870E-07	4.840E-06	4.903E-06	5.506E-06	7.127E-06	1.758E-05	2.320E-04	1.125E-02	1.125E-02	1.125E-02	1.126E-02
Bi-214	7.480E-06	1.283E-05	1.297E-05	1.436E-05	1.798E-05	3.951E-05	3.749E-04	1.128E-02	1.128E-02	1.128E-02	1.113E-02
Fr-223	1.400E-07	6.534E-08	6.666E-08	7.977E-08	1.189E-07	4.804E-07	2.597E-05	1.140E-02	1.140E-02	1.140E-02	1.153E-02
Pa-231	1.390E-07	3.263E-07	3.320E-07	3.883E-07	5.500E-07	1.859E-06	6.035E-05	1.135E-02	1.135E-02	1.135E-02	1.149E-02
Pa-234	8.710E-06	3.990E-06	4.043E-06	4.553E-06	5.929E-06	1.494E-05	2.093E-04	1.128E-02	1.128E-02	1.128E-02	1.130E-02
Pa-234m	6.870E-08	3.049E-06	3.091E-06	3.495E-06	4.592E-06	1.194E-05	1.831E-04	1.127E-02	1.127E-02	1.127E-02	1.133E-02
Pb-210	1.410E-09	5.185E-22	5.583E-22	1.086E-21	4.767E-21	8.441E-19	2.237E-12	1.178E-02	1.178E-02	1.178E-02	1.178E-02
Pb-211	2.290E-07	1.966E-06	1.994E-06	2.270E-06	3.028E-06	8.296E-06	1.478E-04	1.128E-02	1.128E-02	1.128E-02	1.137E-02
Pb-212	5.090E-07	8.432E-08	8.599E-08	1.026E-07	1.520E-07	6.016E-07	3.063E-05	1.142E-02	1.142E-02	1.142E-02	1.154E-02
Pb-214	9.820E-07	5.068E-07	5.153E-07	5.986E-07	8.352E-07	2.679E-06	7.484E-05	1.135E-02	1.135E-02	1.135E-02	1.148E-02
Po-210	3.950E-11	3.377E-06	3.422E-06	3.865E-06	5.062E-06	1.302E-05	1.938E-04	1.127E-02	1.127E-02	1.127E-02	1.132E-02
Po-211	3.580E-08	3.358E-06	3.404E-06	3.844E-06	5.035E-06	1.295E-05	1.928E-04	1.123E-02	1.123E-02	1.123E-02	1.129E-02
Po-212	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Po-214	3.860E-10	3.995E-06	4.048E-06	4.558E-06	5.935E-06	1.495E-05	2.095E-04	1.123E-02	1.123E-02	1.123E-02	1.128E-02
Po-215	7.480E-10	1.355E-06	1.376E-06	1.574E-06	2.125E-06	6.073E-06	1.220E-04	1.129E-02	1.129E-02	1.129E-02	1.140E-02
Po-216	7.870E-11	3.995E-06	4.048E-06	4.558E-06	5.935E-06	1.495E-05	2.095E-04	1.127E-02	1.127E-02	1.127E-02	1.130E-02
Po-218	4.260E-11	4.003E-06	4.056E-06	4.568E-06	5.948E-06	1.499E-05	2.100E-04	1.127E-02	1.127E-02	1.127E-02	1.130E-02
Ra-223	4.340E-07	9.007E-08	9.184E-08	1.095E-07	1.617E-07	6.331E-07	3.128E-05	1.140E-02	1.140E-02	1.140E-02	1.154E-02
Ra-224	3.720E-08	1.229E-07	1.253E-07	1.487E-07	2.177E-07	8.261E-07	3.730E-05	1.140E-02	1.140E-02	1.140E-02	1.153E-02
Ra-226	2.290E-08	5.915E-08	6.035E-08	7.242E-08	1.086E-07	4.481E-07	2.572E-05	1.143E-02	1.143E-02	1.143E-02	1.155E-02
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rn-219	2.250E-07	5.068E-07	5.153E-07	5.986E-07	8.352E-07	2.679E-06	7.484E-05	1.135E-02	1.135E-02		

										1.135E-02	1.149E-02
Rn-220	1.700E-09	1.796E-06	1.823E-06	2.078E-06	2.780E-06	7.697E-06	1.413E-04	1.124E-02	1.124E-02	1.124E-02	1.136E-02
Rn-222	1.740E-09	1.635E-06	1.659E-06	1.894E-06	2.541E-06	7.110E-06	1.345E-04	1.124E-02	1.124E-02	1.124E-02	1.137E-02
Th-227	3.780E-07	2.052E-07	2.089E-07	2.460E-07	3.536E-07	1.260E-06	4.751E-05	1.141E-02	1.141E-02	1.141E-02	1.152E-02
Th-228	5.590E-09	8.743E-09	8.950E-09	1.105E-08	1.764E-08	9.077E-08	9.782E-06	1.146E-02	1.146E-02	1.146E-02	1.158E-02
Th-230	8.190E-10	5.082E-10	5.226E-10	6.727E-10	1.179E-09	8.399E-09	2.294E-06	1.151E-02	1.151E-02	1.151E-02	1.159E-02
Th-231	2.450E-08	2.494E-10	2.568E-10	3.341E-10	5.997E-10	4.647E-09	1.613E-06	1.152E-02	1.152E-02	1.152E-02	1.161E-02
Th-232	3.420E-10	7.250E-11	7.480E-11	9.905E-11	1.849E-10	1.642E-09	8.421E-07	1.156E-02	1.156E-02	1.156E-02	1.163E-02
Th-234	1.630E-08	7.285E-11	7.517E-11	9.967E-11	1.866E-10	1.675E-09	8.850E-07	1.153E-02	1.153E-02	1.153E-02	1.160E-02
Tl-207	1.520E-08	1.761E-06	1.787E-06	2.037E-06	2.725E-06	7.547E-06	1.385E-04	1.128E-02	1.128E-02	1.128E-02	1.138E-02
Tl-208	1.760E-05	3.740E-05	3.776E-05	4.111E-05	4.966E-05	9.623E-05	6.370E-04	1.131E-02	1.131E-02	1.131E-02	1.088E-02
Tl-210	0.000E+00	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02	1.200E-02
U-234	2.520E-10	2.267E-10	2.334E-10	3.033E-10	5.428E-10	4.162E-09	1.403E-06	1.157E-02	1.157E-02	1.157E-02	1.165E-02
U-235	5.180E-07	4.520E-08	4.614E-08	5.559E-08	8.411E-08	3.582E-07	2.250E-05	1.142E-02	1.142E-02	1.142E-02	1.155E-02
U-238	4.990E-11	7.426E-20	7.921E-20	1.415E-19	5.142E-19	4.699E-17	1.881E-11	1.189E-02	1.189E-02	1.189E-02	1.189E-02

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* - Units are 1/yr per (pCi/g) at infinite depth and area. Multiplication by ETFG(i,t) converts to site conditions.

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:32 Page 5
Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 0.000E+00 years

Water Independent Pathways (Inhalation w/o radon) Water Dependent Pathways
Radio- ÄÄÄ ÄÄÄ Total
Nuclide Inhalation Plant Meat Milk Soil Water Fish Plant Meat Milk Ingestion*
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 Ac-227    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Pa-231    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Pb-210    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Ra-226    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Ra-228    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-228    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-230    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-232    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-234     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-235     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-238     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
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 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 0.000E+00 years
0                                                        Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days       05/05/2011  11:32  Page   6
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                   Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                    and Fraction of Total Risk at t= 0.000E+00 years
0                                        Water Independent Pathways (Inhalation excludes radon)
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0              Ground           Inhalation            Plant              Meat               Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
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 Ac-227  3.017E-11 0.0023  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pa-231  1.786E-12 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pb-210  1.239E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-226  3.443E-09 0.2674  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-228  1.025E-09 0.0796  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-228  8.362E-09 0.6494  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-230  1.958E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-232  1.231E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-234   2.735E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-235   9.732E-13 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-238   1.196E-11 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
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 Total   1.288E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
0
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Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

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              Water              Fish              Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk    fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.017E-11
0.0023
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.786E-12
0.0001
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.239E-14
0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.443E-09
0.2674
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.025E-09
0.0796
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  8.362E-09
0.6494
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.958E-17
0.0000
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.231E-18
0.0000
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.735E-18
0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.732E-13
0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.196E-11
0.0009
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.288E-08
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
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 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 0.000E+00 years
0                                                     Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway    Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
```

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Milk	Ground Soil		Inhalation		Radon		Plant		Meat		Milk		
Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Ac-227	1.873E-11	0.0015	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
Pa-231	1.323E-11	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
Pb-210	7.739E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
Ra-226	3.420E-09	0.2656	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
Ra-228	2.362E-09	0.1835	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
Th-228	6.827E-10	0.0530	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
Th-230	2.353E-11	0.0018	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
Th-232	6.342E-09	0.4926	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
U-234	2.181E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
U-235	9.766E-13	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
U-238	1.196E-11	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00
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Total	1.288E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00

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Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

Radio-Nuclide	Water risk	Water fract.	Fish risk	Fish fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	All pathways risk	All pathways fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.873E-11	0.0015
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.323E-11	0.0010
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.739E-15	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.420E-09	0.2656
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.362E-09	0.1835
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.827E-10	0.0530
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.353E-11	0.0018
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.342E-09	0.4926
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.181E-15	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.766E-13	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.196E-11	0.0009
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.288E-08	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Adult 2

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Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 1.000E+00 years

Radio-Nuclide	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways			
	Inhalation	Plant	Meat	Milk	Total Soil	Water	Fish	Plant	Meat

```
  Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Pa-231    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Pb-210    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Ra-226    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Ra-228    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-228    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-230    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 Th-232    0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-234     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-235     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
 U-238     0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  0.000E+00
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 1.000E+00 years
0                                                    Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 ÍÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days       05/05/2011  11:32  Page  10
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
```

and Fraction of Total Risk at t= 1.000E+00 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	3.065E-11	0.0024	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	1.817E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	1.261E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	3.482E-09	0.2677	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	1.038E-09	0.0798	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	8.442E-09	0.6490	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	2.014E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.270E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	2.816E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	9.936E-13	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.212E-11	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.301E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+00 years

Water Dependent Pathways

Radio-	Water	Fish	Plant	Meat	Milk	All Pathways**

Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.065E-11	0.0024
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.817E-12	0.0001
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.261E-14	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.482E-09	0.2677
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.038E-09	0.0798
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.442E-09	0.6490
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.014E-17	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.270E-18	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.816E-18	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.936E-13	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.212E-11	0.0009
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Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.301E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:32 Page 11
Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+00 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
ÄÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ÍÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ	ÍÍÍÍÍÍÍÍÍÍ
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

```
  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+00 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ
 Ac-227  1.843E-11 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  1.403E-11 0.0011  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  7.633E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  3.457E-09 0.2658  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  2.311E-09 0.1777  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  4.798E-10 0.0369  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.529E-11 0.0019  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  6.689E-09 0.5142  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   2.426E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   9.972E-13 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   1.212E-11 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Total   1.301E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  12
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+00 years
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Water Dependent Pathways

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                Water              Fish              Radon             Plant             Meat
Milk            All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.843E-11 0.0014
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.403E-11 0.0011
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.633E-15 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.457E-09 0.2658
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.311E-09 0.1777
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.798E-10 0.0369
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.529E-11 0.0019
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.689E-09 0.5142
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.426E-15 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.972E-13 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.212E-11 0.0009
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.301E-08 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  13
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD
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Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 1.000E+01 years

Water Independent Pathways (Inhalation w/o radon) Water Dependent Pathways

Radio-Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+01 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

1RESRAD, Version 6.5   T« Limit = 180 days   05/05/2011 11:32 Page 14
Intrisk : TTLF Recreational Adult 2

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Plant		Meat		Milk		Soil
Radio-	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ		ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ
Ac-227	3.528E-11	0.0025	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	2.125E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	1.474E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	3.854E-09	0.2702	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	1.161E-09	0.0814	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	9.196E-09	0.6447	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	2.592E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.682E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	3.658E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	1.197E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.368E-11	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
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Total	1.426E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Water	Fish	Plant	Meat	Milk	All

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Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.528E-11
0.0025
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.125E-12
0.0001
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.474E-14
0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.854E-09
0.2702
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.161E-09
0.0814
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.196E-09
0.6447
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.592E-17
0.0000
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.682E-18
0.0000
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.658E-18
0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.197E-12
0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.368E-11
0.0010
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.426E-08
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  15
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 1.000E+01 years
0                                                     Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                   Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon            Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.593E-11 0.0011  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  2.147E-11 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  6.742E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  3.811E-09 0.2672  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.088E-09 0.0763  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  2.004E-11 0.0014  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  4.288E-11 0.0030  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  9.249E-09 0.6485  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   5.556E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   1.204E-12 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   1.368E-11 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   1.426E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  16
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD
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Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.593E-11	0.0011
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.147E-11	0.0015
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.742E-15	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.811E-09	0.2672
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.088E-09	0.0763
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.004E-11	0.0014
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.288E-11	0.0030
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.249E-09	0.6485
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.556E-15	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.204E-12	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.368E-11	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.426E-08	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+01 years

Radio- Nuclide	Water Independent Pathways (Inhalation w/o radon) Inhalation	Plant	Meat	Milk	Total Soil	Water Dependent Pathways Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+01 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Adult 2

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Plant		Meat		Milk		Soil
Radio- Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk fract.
Ac-227	4.828E-11	0.0028	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Pa-231	3.008E-12	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Pb-210	2.093E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Ra-226	4.829E-09	0.2758	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Ra-228	1.489E-09	0.0850	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Th-228	1.112E-08	0.6351	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Th-230	4.541E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Th-232	3.139E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
U-234	6.541E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
U-235	1.809E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
U-238	1.791E-11	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000
Total	1.751E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00 0.0000

0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

Radio- Nuclide	Water risk	Water fract.	Fish risk	Fish fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	All Pathways** risk	All Pathways** fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.828E-11	0.0028
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.008E-12	0.0002
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.093E-14	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.829E-09	0.2758
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.489E-09	0.0850
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.112E-08	0.6351
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.541E-17	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.139E-18	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.541E-18	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.809E-12	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.791E-11	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.751E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 3.000E+01 years

0 Radionuclides

Radon

Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

0 Water Independent Pathways (Inhalation excludes radon)

0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk	
Nuclide	Soil risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	1.153E-11	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	3.973E-11	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	5.133E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	4.734E-09	0.2704	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	1.218E-10	0.0070	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	1.728E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	9.490E-11	0.0054	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.249E-08	0.7132	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	2.034E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	1.835E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	1.791E-11	0.0010	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	1.751E-08	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.153E-11	0.0007
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.973E-11	0.0023
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.133E-15	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.734E-09	0.2704
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.218E-10	0.0070
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.728E-14	0.0000
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.490E-11	0.0054
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.249E-08	0.7132
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.034E-14	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.835E-12	0.0001
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.791E-11	0.0010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.751E-08	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 1.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways			
Nuclide	Inhalation	Plant	Meat	Milk	Total Soil	Water	Fish	Plant	Meat
Milk	Ingestion*								
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.000E+00	0.000E+00								

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+02 years

0

Radon	Radionuclides							
Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  22
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  and Fraction of Total Risk at t= 1.000E+02 years
0                                      Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Plant             Meat              Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  1.460E-10 0.0040  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pa-231  1.015E-11 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pb-210  7.368E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-226  1.064E-08 0.2950  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-228  3.557E-09 0.0986  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-228  2.166E-08 0.6006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-230  3.232E-16 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-232  2.786E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-234   5.001E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-235   7.685E-12 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-238   4.593E-11 0.0013  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
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ÍÍÍÍÍÍ
 Total   3.607E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
0
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and Fraction of Total Risk at t= 1.000E+02 years

Water Dependent Pathways

Radio- Nuclide	Water risk	Water fract.	Fish risk	Fish fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	All Pathways** risk	All Pathways** fract.
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.460E-10	0.0040
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.015E-11	0.0003
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.368E-14	0.0000
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.064E-08	0.2950
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.557E-09	0.0986
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.166E-08	0.6006
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.232E-16	0.0000
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.786E-17	0.0000
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.001E-17	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.685E-12	0.0002
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.593E-11	0.0013
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.607E-08	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 1.000E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	3.752E-12	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	1.521E-10	0.0042	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	2.034E-15	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	1.012E-08	0.2806	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	5.231E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	3.253E-25	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	5.204E-10	0.0144	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	2.522E-08	0.6992	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	2.749E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	7.974E-12	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	4.593E-11	0.0013	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

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 Total   3.607E-08 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  24
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+02 years

                                                     Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.752E-12 0.0001
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.521E-10 0.0042
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.034E-15 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.012E-08 0.2806
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.231E-14 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.253E-25 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.204E-10 0.0144
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.522E-08 0.6992
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.749E-13 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.974E-12 0.0002
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.593E-11 0.0013
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.607E-08 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
```

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 3.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways				
Nuclide	Inhalation	Plant	Meat	Milk	Total Soil	Water	Fish	Plant	Meat	Milk
	Ingestion*									
Ac-227	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
Pa-231	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
Pb-210	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
Ra-226	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
Ra-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
Th-228	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
Th-230	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
U-234	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
U-235	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								
U-238	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	0.000E+00	0.000E+00								

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 3.000E+02 years

0

Radon	Radionuclides							
Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212

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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  26
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  and Fraction of Total Risk at t= 3.000E+02 years
0                                      Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Plant             Meat              Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
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ÄÄÄÄÄÄÄ
 Ac-227  3.751E-09 0.0126  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pa-231  3.279E-10 0.0011  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Pb-210  3.235E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-226  1.027E-07 0.3445  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Ra-228  4.280E-08 0.1435  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-228  1.474E-07 0.4944  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-230  8.809E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 Th-232  1.425E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-234   1.672E-14 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-235   4.803E-10 0.0016  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
 U-238   6.787E-10 0.0023  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000
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 Total   2.982E-07 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000
0

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk
Ac-227	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.751E-09
0.0126											
Pa-231	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.279E-10
0.0011											
Pb-210	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.235E-12
0.0000											
Ra-226	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.027E-07
0.3445											
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.280E-08
0.1435											
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.474E-07
0.4944											
Th-230	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.809E-14
0.0000											
Th-232	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.425E-14
0.0000											
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.672E-14
0.0000											
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.803E-10
0.0016											
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.787E-10
0.0023											
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.982E-07
1.0000											

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

1RESRAD, Version 6.5 T« Limit = 180 days 05/05/2011 11:32 Page 27
Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 3.000E+02 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 3.000E+02 years

0

Water Independent Pathways (Inhalation excludes radon)

0

Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.652E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	4.055E-09	0.0136	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	1.740E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	8.960E-08	0.3004	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	1.294E-23	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	1.311E-08	0.0440	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	1.902E-07	0.6380	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	1.903E-11	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	5.050E-10	0.0017	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	6.787E-10	0.0023	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

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0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   2.982E-07 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  28
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 3.000E+02 years

                                                     Water Dependent Pathways

              Water              Fish              Radon            Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.652E-13 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.055E-09 0.0136
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.740E-16 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.960E-08 0.3004
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.294E-23 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.311E-08 0.0440
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.902E-07 0.6380
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.903E-11 0.0001
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.050E-10 0.0017
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.787E-10 0.0023
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

0.0000 2.982E-07 1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

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Intrisk : TTLF Recreational Adult 2

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 6.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways				
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk
	Ingestion*									
Ac-227	8.411E-04	0.000E+00	0.000E+00	0.000E+00	4.317E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.317E-01									
Pa-231	8.412E-04	0.000E+00	0.000E+00	0.000E+00	4.318E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.318E-01									
Pb-210	8.465E-04	0.000E+00	0.000E+00	0.000E+00	4.345E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.345E-01									
Ra-226	8.494E-04	0.000E+00	0.000E+00	0.000E+00	4.360E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.360E-01									
Ra-228	8.477E-04	0.000E+00	0.000E+00	0.000E+00	4.351E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.351E-01									
Th-228	8.477E-04	0.000E+00	0.000E+00	0.000E+00	4.351E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.351E-01									
Th-230	8.476E-04	0.000E+00	0.000E+00	0.000E+00	4.351E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.351E-01									
Th-232	8.476E-04	0.000E+00	0.000E+00	0.000E+00	4.351E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.351E-01									
U-234	8.330E-04	0.000E+00	0.000E+00	0.000E+00	4.276E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.276E-01									
U-235	8.330E-04	0.000E+00	0.000E+00	0.000E+00	4.276E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.276E-01									
U-238	8.330E-04	0.000E+00	0.000E+00	0.000E+00	4.276E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
	4.276E-01									

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil and water-dependent water, fish, plant, meat, milk pathways

0

Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 6.000E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Adult 2

File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 6.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio-Nuclide	Ground		Inhalation		Plant		Meat		Milk		Soil	
	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Ac-227	4.930E-07	0.0626	5.369E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.454E-09	0.0011
Pa-231	4.663E-08	0.0059	1.922E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.926E-09	0.0004
Pb-210	1.439E-09	0.0002	7.809E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.488E-08	0.0057
Ra-226	2.861E-06	0.3633	7.203E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.733E-09	0.0009
Ra-228	1.525E-06	0.1937	1.112E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.870E-08	0.0024
Th-228	2.617E-06	0.3323	3.662E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.513E-09	0.0007
Th-230	2.808E-10	0.0000	8.644E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.553E-09	0.0002
Th-232	1.178E-10	0.0000	1.101E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.736E-09	0.0002
U-234	8.535E-11	0.0000	6.943E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.224E-09	0.0002
U-235	1.815E-07	0.0230	6.244E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.252E-09	0.0002
U-238	3.762E-08	0.0048	5.902E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.546E-09	0.0002

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ÍÍÍÍÍÍ
 Total   7.764E-06 0.9858  1.744E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.451E-08
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 6.000E+02 years

Water Dependent Pathways

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              Water              Fish              Plant             Meat              Milk          All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
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ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.068E-07
0.0643
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.148E-08
0.0065
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.709E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.868E-06
0.3642
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.545E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.626E-06
0.3335
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.698E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.955E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.004E-09
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.833E-07
0.0233
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.976E-08
0.0050
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.876E-06
1.0000
```

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 6.000E+02 years

0

Radon Pathway	Radionuclides Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 6.000E+02 years

0

Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground Soil risk	fract.	Inhalation risk	fract.	Radon risk	fract.	Plant risk	fract.	Meat risk	fract.	Milk risk	fract.
Ac-227	1.605E-15	0.0000	1.749E-17	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pa-231	5.330E-07	0.0677	7.201E-09	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Pb-210	6.986E-18	0.0000	3.792E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-226	2.194E-06	0.2785	1.159E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	6.671E-07	0.0847	1.201E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-232	4.142E-06	0.5260	5.875E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-234	2.003E-09	0.0003	6.988E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

```
 U-235   1.881E-07 0.0239  7.147E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.393E-09 0.0002
 U-238   3.762E-08 0.0048  5.914E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.548E-09 0.0002
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ÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍ
 Total   7.764E-06 0.9858  1.744E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.451E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  32
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 6.000E+02 years

                                                     Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.651E-15 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.514E-07 0.0700
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.287E-16 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.235E-06 0.2838
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.814E-07 0.0865
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.174E-06 0.5300
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.964E-09 0.0005
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.902E-07 0.0241
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.976E-08 0.0050
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.876E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  33
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                       Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                                      As pCi/yr at t= 7.500E+02 years

           Water Independent Pathways (Inhalation w/o radon)                      Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation   Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
   Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    8.381E-04  0.000E+00  0.000E+00  0.000E+00  4.302E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.302E-01
 Pa-231    8.381E-04  0.000E+00  0.000E+00  0.000E+00  4.302E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.302E-01
 Pb-210    8.455E-04  0.000E+00  0.000E+00  0.000E+00  4.340E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.340E-01
 Ra-226    8.484E-04  0.000E+00  0.000E+00  0.000E+00  4.355E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.355E-01
 Ra-228    8.463E-04  0.000E+00  0.000E+00  0.000E+00  4.344E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.344E-01
 Th-228    8.463E-04  0.000E+00  0.000E+00  0.000E+00  4.344E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.344E-01
 Th-230    8.462E-04  0.000E+00  0.000E+00  0.000E+00  4.344E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.344E-01
 Th-232    8.462E-04  0.000E+00  0.000E+00  0.000E+00  4.344E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.344E-01
 U-234     8.280E-04  0.000E+00  0.000E+00  0.000E+00  4.250E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.250E-01
 U-235     8.280E-04  0.000E+00  0.000E+00  0.000E+00  4.250E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.250E-01
 U-238     8.280E-04  0.000E+00  0.000E+00  0.000E+00  4.250E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.250E-01
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
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Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 7.500E+02 years

0 Radionuclides

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

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Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 7.500E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	4.912E-07	0.0625	5.350E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.424E-09	0.0011
Pa-231	4.646E-08	0.0059	1.915E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.916E-09	0.0004
Pb-210	1.437E-09	0.0002	7.800E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.482E-08	0.0057
Ra-226	2.857E-06	0.3634	7.195E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.724E-09	0.0009
Ra-228	1.523E-06	0.1937	1.111E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.867E-08	0.0024
Th-228	2.613E-06	0.3323	3.656E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.504E-09	0.0007
Th-230	2.803E-10	0.0000	8.629E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.550E-09	0.0002
Th-232	1.176E-10	0.0000	1.099E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.733E-09	0.0002
U-234	8.484E-11	0.0000	6.902E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.217E-09	0.0002
U-235	1.804E-07	0.0229	6.207E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.244E-09	

```
0.0002
 U-238   3.739E-08 0.0048  5.867E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.537E-09
0.0002
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ÍÍÍÍÍÍ
 Total   7.750E-06 0.9858  1.739E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.434E-08
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 7.500E+02 years

Water Dependent Pathways

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              Water              Fish              Plant             Meat              Milk          All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.050E-07
0.0642
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.129E-08
0.0065
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.704E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.865E-06
0.3644
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.543E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.622E-06
0.3335
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.694E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.950E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.992E-09
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.822E-07
0.0232
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.952E-08
0.0050
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.862E-06
1.0000
```

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

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Intrisk : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

Radon and its Decay Products at t= 7.500E+02 years

0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent Water-dep. == Water-dependent

0

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 7.500E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0

Radio-Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Radon risk	Radon fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	1.349E-17	0.0000	1.469E-19	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.313E-19	0.0000
Pa-231	5.294E-07	0.0673	7.153E-09	0.0009	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.116E-08	0.0014
Pb-210	6.483E-20	0.0000	3.519E-20	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.022E-18	0.0000
Ra-226	2.053E-06	0.2612	1.085E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.747E-08	0.0048
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	8.029E-07	0.1021	1.270E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.556E-08	0.0020
Th-232	4.136E-06	0.5260	5.865E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00			

```
0.0000  2.591E-08 0.0033
 U-234   2.981E-09 0.0004  6.960E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.274E-09 0.0002
 U-235   1.886E-07 0.0240  7.332E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.420E-09 0.0002
 U-238   3.740E-08 0.0048  5.882E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.540E-09 0.0002
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 Total   7.750E-06 0.9858  1.739E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.434E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  36
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 7.500E+02 years

                                                   Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.387E-17 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.477E-07 0.0697
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.122E-18 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.092E-06 0.2661
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.197E-07 0.1043
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.167E-06 0.5301
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.950E-09 0.0006
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

0.0000 1.908E-07 0.0243
 U-238   0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00
0.0000 3.952E-08 0.0050
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 Total   0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00 0.0000 0.000E+00
0.0000 7.862E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

1RESRAD, Version 6.5   T« Limit = 180 days   05/05/2011 11:32 Page 37
 Intrisk : TTLF Recreational Adult 2
 File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As pCi/yr at t= 1.000E+03 years

Radio- Nuclide	Water Independent Pathways (Inhalation w/o radon): Inhalation	Plant	Meat	Milk	Soil	Water Dependent Pathways: Water	Fish	Plant	Meat	Milk	Total Ingestion*
Ac-227	8.330E-04	0.000E+00	0.000E+00	0.000E+00	4.276E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.276E-01
Pa-231	8.331E-04	0.000E+00	0.000E+00	0.000E+00	4.277E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.277E-01
Pb-210	8.437E-04	0.000E+00	0.000E+00	0.000E+00	4.331E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.331E-01
Ra-226	8.466E-04	0.000E+00	0.000E+00	0.000E+00	4.346E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.346E-01
Ra-228	8.439E-04	0.000E+00	0.000E+00	0.000E+00	4.332E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.332E-01
Th-228	8.439E-04	0.000E+00	0.000E+00	0.000E+00	4.332E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.332E-01
Th-230	8.438E-04	0.000E+00	0.000E+00	0.000E+00	4.331E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.331E-01
Th-232	8.439E-04	0.000E+00	0.000E+00	0.000E+00	4.332E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.332E-01
U-234	8.198E-04	0.000E+00	0.000E+00	0.000E+00	4.208E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.208E-01
U-235	8.198E-04	0.000E+00	0.000E+00	0.000E+00	4.208E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.208E-01
U-238	8.198E-04	0.000E+00	0.000E+00	0.000E+00	4.208E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.208E-01

 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

Radon and its Decay Products as pCi/yr at t= 1.000E+03 years
0

Radon Pathway	Rn-222	Po-218	Pb-214	Bi-214	Rn-220	Po-216	Pb-212	Bi-212
Water-ind.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Water-dep.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Water-ind. == Water-independent   Water-dep. == Water-dependent

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years
0
Water Independent Pathways (Inhalation excludes radon)
0

Radio-Nuclide	Ground risk	Ground fract.	Inhalation risk	Inhalation fract.	Plant risk	Plant fract.	Meat risk	Meat fract.	Milk risk	Milk fract.	Soil risk	Soil fract.
Ac-227	4.882E-07	0.0623	5.318E-09	0.0007	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.374E-09	0.0011
Pa-231	4.618E-08	0.0059	1.904E-09	0.0002	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.898E-09	0.0004
Pb-210	1.434E-09	0.0002	7.783E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.473E-08	0.0057
Ra-226	2.851E-06	0.3638	7.180E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.710E-09	0.0009
Ra-228	1.519E-06	0.1937	1.107E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.862E-08	0.0024
Th-228	2.606E-06	0.3324	3.646E-09	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.489E-09	0.0007
Th-230	2.795E-10	0.0000	8.605E-10	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.546E-09	0.0002
Th-232	1.173E-10	0.0000	1.096E-09	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.728E-09	0.0002

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 U-234   8.399E-11 0.0000  6.833E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.205E-09
0.0002
 U-235   1.786E-07 0.0228  6.145E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.232E-09
0.0002
 U-238   3.702E-08 0.0047  5.808E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.522E-09
0.0002
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ÍÍÍÍÍÍ
 Total   7.727E-06 0.9858  1.731E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.405E-08
0.0120
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 1.000E+03 years

Water Dependent Pathways

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              Water              Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.019E-07
0.0640
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.098E-08
0.0065
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.694E-08
0.0060
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.859E-06
0.3647
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.538E-06
0.1962
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.615E-06
0.3336
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.686E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.941E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.972E-09
0.0003
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.804E-07
0.0230
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.912E-08
0.0050
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.839E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days       05/05/2011  11:32  Page  39
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

               Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                           Radon and its Decay Products at t= 1.000E+03 years
0                                                  Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
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  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                              and Fraction of Total Risk at t= 1.000E+03 years
0                                           Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.    risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  4.684E-21 0.0000  5.102E-23 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.034E-23 0.0000
 Pa-231  5.235E-07 0.0668  7.073E-09 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.104E-08 0.0014
 Pb-210  2.657E-23 0.0000  1.442E-23 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.286E-22 0.0000
 Ra-226  1.839E-06 0.2346  9.718E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.357E-08 0.0043
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Th-230  1.009E-06 0.1287  1.375E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.932E-08 0.0025
 Th-232  4.124E-06 0.5261  5.849E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.584E-08 0.0033
 U-234   4.982E-09 0.0006  6.915E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.299E-09 0.0002
 U-235   1.895E-07 0.0242  7.633E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.464E-09 0.0002
 U-238   3.703E-08 0.0047  5.828E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.525E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   7.727E-06 0.9858  1.731E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.405E-08 0.0120
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  40
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 1.000E+03 years

                                                   Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.816E-21 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.416E-07 0.0691
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.696E-22 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.874E-06 0.2391
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.030E-06 0.1313
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.156E-06 0.5302
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 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.972E-09 0.0009
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.918E-07 0.0245
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.914E-08 0.0050
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.839E-06 1.0000

 ***CNRSI(i,p,t) includes contribution from decay daughter radionuclides
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  41
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                       Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways
(p)
                                                              As pCi/yr at t= 2.300E+03 years

            Water Independent Pathways (Inhalation w/o radon)                      Water Dependent Pathways
 Radio-   ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ   Total
 Nuclide  Inhalation  Plant       Meat       Milk       Soil      Water       Fish      Plant       Meat
   Milk    Ingestion*
 ÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227    8.072E-04  0.000E+00  0.000E+00  0.000E+00  4.143E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.143E-01
 Pa-231    8.072E-04  0.000E+00  0.000E+00  0.000E+00  4.144E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.144E-01
 Pb-210    8.337E-04  0.000E+00  0.000E+00  0.000E+00  4.280E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.280E-01
 Ra-226    8.366E-04  0.000E+00  0.000E+00  0.000E+00  4.294E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.294E-01
 Ra-228    8.319E-04  0.000E+00  0.000E+00  0.000E+00  4.270E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.270E-01
 Th-228    8.319E-04  0.000E+00  0.000E+00  0.000E+00  4.270E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.270E-01
 Th-230    8.313E-04  0.000E+00  0.000E+00  0.000E+00  4.267E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.267E-01
 Th-232    8.319E-04  0.000E+00  0.000E+00  0.000E+00  4.270E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  4.270E-01
 U-234     7.782E-04  0.000E+00  0.000E+00  0.000E+00  3.995E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  3.995E-01
 U-235     7.782E-04  0.000E+00  0.000E+00  0.000E+00  3.995E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
 0.000E+00  3.995E-01
 U-238     7.782E-04  0.000E+00  0.000E+00  0.000E+00  3.995E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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 0.000E+00  3.995E-01
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 * Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
   and water-dependent water, fish, plant, meat, milk pathways
0
           Amount of Intake Quantities QINT9(irn,i,t) and QINT9W(irn,i,t) for Inhalation of

                      Radon and its Decay Products as pCi/yr at t= 2.300E+03 years
0                                                    Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  42
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                   and Fraction of Total Risk at t= 2.300E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Plant              Meat               Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  4.780E-07 0.0631  5.153E-09 0.0007  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  8.114E-09
0.0011
 Pa-231  4.530E-08 0.0060  1.845E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.808E-09
0.0004
 Pb-210  1.433E-09 0.0002  7.691E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.420E-08
0.0058
 Ra-226  2.776E-06 0.3663  7.094E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  6.631E-09
0.0009
 Ra-228  1.486E-06 0.1961  1.092E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.835E-08
0.0024
 Th-228  2.474E-06 0.3265  3.594E-09 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  5.410E-09
0.0007
 Th-230  2.775E-10 0.0000  8.478E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.523E-09
```

```
0.0002
 Th-232  1.164E-10 0.0000  1.080E-09 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.703E-09
0.0002
 U-234   8.031E-11 0.0000  6.486E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.144E-09
0.0002
 U-235   1.715E-07 0.0226  5.833E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.169E-09
0.0002
 U-238   3.523E-08 0.0046  5.514E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.445E-09
0.0002
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ÍÍÍÍÍÍ
 Total   7.468E-06 0.9856  1.687E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  9.250E-08
0.0122
0
```

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)

and Fraction of Total Risk at t= 2.300E+03 years

Water Dependent Pathways

```
              Water              Fish               Plant              Meat               Milk           All
Pathways**
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.912E-07
0.0648
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.996E-08
0.0066
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  4.640E-08
0.0061
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.783E-06
0.3673
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.505E-06
0.1987
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.483E-06
0.3277
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.648E-09
0.0003
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  2.900E-09
0.0004
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.873E-09
0.0002
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  1.732E-07
0.0229
```

```
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  3.722E-08
0.0049
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ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  7.577E-06
1.0000

 ** Sum of water independent ground, inhalation, plant, meat, milk, soil
    and water dependent water, fish, plant, meat, milk pathways
1RESRAD, Version 6.5      T« Limit = 180 days       05/05/2011  11:32  Page  43
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

              Excess Cancer Risks CNRS9(irn,i,t) and CNRS9W(irn,i,t) for Inhalation of

                            Radon and its Decay Products at t= 2.300E+03 years
0                                               Radionuclides
   Radon     ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
   Pathway     Rn-222     Po-218     Pb-214     Bi-214     Rn-220     Po-216     Pb-212     Bi-212
 ÄÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
  Water-ind.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
  Water-dep.  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00
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  Total       0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00

  Water-ind. == Water-independent    Water-dep. == Water-dependent
0
                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                          and Fraction of Total Risk at t= 2.300E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation          Radon            Plant              Meat
Milk              Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.    risk   fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  4.990E-07 0.0659  6.672E-09 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.041E-08 0.0014
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  1.022E-06 0.1349  5.483E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.894E-08 0.0025
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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```
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  1.734E-06 0.2289  1.750E-09 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.301E-08 0.0044
 Th-232  3.960E-06 0.5227  5.766E-09 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.547E-08 0.0034
 U-234   2.065E-08 0.0027  6.721E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.535E-09 0.0002
 U-235   1.957E-07 0.0258  9.087E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.677E-09 0.0002
 U-238   3.527E-08 0.0047  5.557E-10 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.453E-09 0.0002
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   7.468E-06 0.9856  1.687E-08 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.250E-08 0.0122
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  44
 Intrisk : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                  Total Excess Cancer Risk CNRS(i,p,t)*** for  Initially Existent Radionuclides (i) and
Pathways (p)
                                        and Fraction of Total Risk at t= 2.300E+03 years

                                                  Water Dependent Pathways

              Water              Fish              Radon             Plant              Meat
Milk          All pathways
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide    risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk   fract.     risk
fract.     risk   fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.161E-07 0.0681
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.042E-06 0.1375
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
```

```
0.0000  1.769E-06 0.2335
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.991E-06 0.5268
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.285E-08 0.0030
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.983E-07 0.0262
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.728E-08 0.0049
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.577E-06 1.0000
```

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Appendix G-10
RESRAD Dose Output for Trespasser Adult Future Baseline

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Dose Conversion Factor (and Related) Parameter Summary
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(1)
A-1	Ac-228 (Source: FGR 12)	5.978E+00	5.978E+00	DCF1(2)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(3)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(4)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(5)
A-1	Bi-212 (Source: FGR 12)	1.171E+00	1.171E+00	DCF1(6)

```
A-1  ³ Bi-214   (Source: FGR 12)                                  ³ 9.808E+00 ³ 9.808E+00 ³ DCF1(  7)
A-1  ³ Fr-223   (Source: FGR 12)                                  ³ 1.980E-01 ³ 1.980E-01 ³ DCF1(  8)
A-1  ³ Pa-231   (Source: FGR 12)                                  ³ 1.906E-01 ³ 1.906E-01 ³ DCF1(  9)
A-1  ³ Pa-234   (Source: FGR 12)                                  ³ 1.155E+01 ³ 1.155E+01 ³ DCF1( 10)
A-1  ³ Pa-234m  (Source: FGR 12)                                  ³ 8.967E-02 ³ 8.967E-02 ³ DCF1( 11)
A-1  ³ Pb-210   (Source: FGR 12)                                  ³ 2.447E-03 ³ 2.447E-03 ³ DCF1( 12)
A-1  ³ Pb-211   (Source: FGR 12)                                  ³ 3.064E-01 ³ 3.064E-01 ³ DCF1( 13)
A-1  ³ Pb-212   (Source: FGR 12)                                  ³ 7.043E-01 ³ 7.043E-01 ³ DCF1( 14)
A-1  ³ Pb-214   (Source: FGR 12)                                  ³ 1.341E+00 ³ 1.341E+00 ³ DCF1( 15)
A-1  ³ Po-210   (Source: FGR 12)                                  ³ 5.231E-05 ³ 5.231E-05 ³ DCF1( 16)
A-1  ³ Po-211   (Source: FGR 12)                                  ³ 4.764E-02 ³ 4.764E-02 ³ DCF1( 17)
A-1  ³ Po-212   (Source: FGR 12)                                  ³ 0.000E+00 ³ 0.000E+00 ³ DCF1( 18)
A-1  ³ Po-214   (Source: FGR 12)                                  ³ 5.138E-04 ³ 5.138E-04 ³ DCF1( 19)
A-1  ³ Po-215   (Source: FGR 12)                                  ³ 1.016E-03 ³ 1.016E-03 ³ DCF1( 20)
A-1  ³ Po-216   (Source: FGR 12)                                  ³ 1.042E-04 ³ 1.042E-04 ³ DCF1( 21)
A-1  ³ Po-218   (Source: FGR 12)                                  ³ 5.642E-05 ³ 5.642E-05 ³ DCF1( 22)
A-1  ³ Ra-223   (Source: FGR 12)                                  ³ 6.034E-01 ³ 6.034E-01 ³ DCF1( 23)
A-1  ³ Ra-224   (Source: FGR 12)                                  ³ 5.119E-02 ³ 5.119E-02 ³ DCF1( 24)
A-1  ³ Ra-226   (Source: FGR 12)                                  ³ 3.176E-02 ³ 3.176E-02 ³ DCF1( 25)
A-1  ³ Ra-228   (Source: FGR 12)                                  ³ 0.000E+00 ³ 0.000E+00 ³ DCF1( 26)
A-1  ³ Rn-219   (Source: FGR 12)                                  ³ 3.083E-01 ³ 3.083E-01 ³ DCF1( 27)
A-1  ³ Rn-220   (Source: FGR 12)                                  ³ 2.298E-03 ³ 2.298E-03 ³ DCF1( 28)
A-1  ³ Rn-222   (Source: FGR 12)                                  ³ 2.354E-03 ³ 2.354E-03 ³ DCF1( 29)
A-1  ³ Th-227   (Source: FGR 12)                                  ³ 5.212E-01 ³ 5.212E-01 ³ DCF1( 30)
A-1  ³ Th-228   (Source: FGR 12)                                  ³ 7.940E-03 ³ 7.940E-03 ³ DCF1( 31)
A-1  ³ Th-230   (Source: FGR 12)                                  ³ 1.209E-03 ³ 1.209E-03 ³ DCF1( 32)
A-1  ³ Th-231   (Source: FGR 12)                                  ³ 3.643E-02 ³ 3.643E-02 ³ DCF1( 33)
A-1  ³ Th-232   (Source: FGR 12)                                  ³ 5.212E-04 ³ 5.212E-04 ³ DCF1( 34)
A-1  ³ Th-234   (Source: FGR 12)                                  ³ 2.410E-02 ³ 2.410E-02 ³ DCF1( 35)
A-1  ³ Tl-207   (Source: FGR 12)                                  ³ 1.980E-02 ³ 1.980E-02 ³ DCF1( 36)
A-1  ³ Tl-208   (Source: FGR 12)                                  ³ 2.298E+01 ³ 2.298E+01 ³ DCF1( 37)
A-1  ³ Tl-210   (Source: no data)                                 ³ 0.000E+00 ³-2.000E+00 ³ DCF1( 38)
A-1  ³ U-234    (Source: FGR 12)                                  ³ 4.017E-04 ³ 4.017E-04 ³ DCF1( 39)
A-1  ³ U-235    (Source: FGR 12)                                  ³ 7.211E-01 ³ 7.211E-01 ³ DCF1( 40)
A-1  ³ U-238    (Source: FGR 12)                                  ³ 1.031E-04 ³ 1.031E-04 ³ DCF1( 41)
     ³                                                            ³           ³           ³
B-1  ³ Dose conversion factors for inhalation, mrem/pCi:          ³           ³           ³
B-1  ³ Ac-227+D                                                   ³ 6.724E+00 ³ 6.700E+00 ³ DCF2(  1)
B-1  ³ Pa-231                                                     ³ 1.280E+00 ³ 1.280E+00 ³ DCF2(  2)
B-1  ³ Pb-210+D                                                   ³ 2.320E-02 ³ 1.360E-02 ³ DCF2(  3)
B-1  ³ Ra-226+D                                                   ³ 8.594E-03 ³ 8.580E-03 ³ DCF2(  4)
B-1  ³ Ra-228+D                                                   ³ 5.078E-03 ³ 4.770E-03 ³ DCF2(  5)
B-1  ³ Th-228+D                                                   ³ 3.454E-01 ³ 3.420E-01 ³ DCF2(  6)
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page   3
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Summary : TTLF Recreational Adult 2
File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-230	3.260E-01	3.260E-01	DCF2(7)
B-1	Th-232	1.640E+00	1.640E+00	DCF2(8)
B-1	U-234	1.320E-01	1.320E-01	DCF2(9)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(10)
B-1	U-238	1.180E-01	1.180E-01	DCF2(11)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(12)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.410E-02	DCF3(1)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(2)
D-1	Pb-210+D	7.276E-03	5.370E-03	DCF3(3)
D-1	Ra-226+D	1.321E-03	1.320E-03	DCF3(4)
D-1	Ra-228+D	1.442E-03	1.440E-03	DCF3(5)
D-1	Th-228+D	8.086E-04	3.960E-04	DCF3(6)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(7)
D-1	Th-232	2.730E-03	2.730E-03	DCF3(8)
D-1	U-234	2.830E-04	2.830E-04	DCF3(9)
D-1	U-235+D	2.673E-04	2.660E-04	DCF3(10)
D-1	U-238	2.550E-04	2.550E-04	DCF3(11)
D-1	U-238+D	2.687E-04	2.550E-04	DCF3(12)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(2,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(3,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(3,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(3,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(4,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(4,2)

```
 D-34 ³ Ra-226+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  4,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ Ra-228+D  , plant/soil concentration ratio, dimensionless   ³ 4.000E-02 ³ 4.000E-02 ³ RTF(  5,1)
 D-34 ³ Ra-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,2)
 D-34 ³ Ra-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  5,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ Th-228+D  , plant/soil concentration ratio, dimensionless   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  6,1)
 D-34 ³ Th-228+D  , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  6,2)
 D-34 ³ Th-228+D  , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  6,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ Th-230    , plant/soil concentration ratio, dimensionless   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  7,1)
 D-34 ³ Th-230    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  7,2)
 D-34 ³ Th-230    , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  7,3)
 D-34 ³                                                             ³           ³           ³
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 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                    Dose Conversion Factor (and Related) Parameter Summary (continued)
                                    Dose Library: FGR 12 & FGR 11
0     ³                                                             ³  Current  ³   Base    ³  Parameter
 Menu ³                         Parameter                           ³  Value#   ³   Case*   ³    Name
 ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 D-34 ³ Th-232    , plant/soil concentration ratio, dimensionless   ³ 1.000E-03 ³ 1.000E-03 ³ RTF(  8,1)
 D-34 ³ Th-232    , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 1.000E-04 ³ 1.000E-04 ³ RTF(  8,2)
 D-34 ³ Th-232    , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 5.000E-06 ³ 5.000E-06 ³ RTF(  8,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-234     , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF(  9,1)
 D-34 ³ U-234     , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF(  9,2)
 D-34 ³ U-234     , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF(  9,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-235+D   , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF( 10,1)
 D-34 ³ U-235+D   , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF( 10,2)
 D-34 ³ U-235+D   , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF( 10,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-238     , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF( 11,1)
 D-34 ³ U-238     , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF( 11,2)
 D-34 ³ U-238     , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF( 11,3)
 D-34 ³                                                             ³           ³           ³
 D-34 ³ U-238+D   , plant/soil concentration ratio, dimensionless   ³ 2.500E-03 ³ 2.500E-03 ³ RTF( 12,1)
 D-34 ³ U-238+D   , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)   ³ 3.400E-04 ³ 3.400E-04 ³ RTF( 12,2)
 D-34 ³ U-238+D   , milk/livestock-intake ratio, (pCi/L)/(pCi/d)    ³ 6.000E-04 ³ 6.000E-04 ³ RTF( 12,3)
      ³                                                             ³           ³           ³
 D-5  ³ Bioaccumulation factors, fresh water, L/kg:                 ³           ³           ³
```

```
 D-5  ³ Ac-227+D  , fish                                           ³ 1.500E+01 ³ 1.500E+01 ³ BIOFAC(  1,1)
 D-5  ³ Ac-227+D  , crustacea and mollusks                         ³ 1.000E+03 ³ 1.000E+03 ³ BIOFAC(  1,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ Pa-231    , fish                                           ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC(  2,1)
 D-5  ³ Pa-231    , crustacea and mollusks                         ³ 1.100E+02 ³ 1.100E+02 ³ BIOFAC(  2,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ Pb-210+D  , fish                                           ³ 3.000E+02 ³ 3.000E+02 ³ BIOFAC(  3,1)
 D-5  ³ Pb-210+D  , crustacea and mollusks                         ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  3,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ Ra-226+D  , fish                                           ³ 5.000E+01 ³ 5.000E+01 ³ BIOFAC(  4,1)
 D-5  ³ Ra-226+D  , crustacea and mollusks                         ³ 2.500E+02 ³ 2.500E+02 ³ BIOFAC(  4,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ Ra-228+D  , fish                                           ³ 5.000E+01 ³ 5.000E+01 ³ BIOFAC(  5,1)
 D-5  ³ Ra-228+D  , crustacea and mollusks                         ³ 2.500E+02 ³ 2.500E+02 ³ BIOFAC(  5,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ Th-228+D  , fish                                           ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  6,1)
 D-5  ³ Th-228+D  , crustacea and mollusks                         ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  6,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ Th-230    , fish                                           ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  7,1)
 D-5  ³ Th-230    , crustacea and mollusks                         ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  7,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ Th-232    , fish                                           ³ 1.000E+02 ³ 1.000E+02 ³ BIOFAC(  8,1)
 D-5  ³ Th-232    , crustacea and mollusks                         ³ 5.000E+02 ³ 5.000E+02 ³ BIOFAC(  8,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ U-234     , fish                                           ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC(  9,1)
 D-5  ³ U-234     , crustacea and mollusks                         ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC(  9,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ U-235+D   , fish                                           ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 10,1)
 D-5  ³ U-235+D   , crustacea and mollusks                         ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 10,2)
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page   5
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                              Dose Conversion Factor (and Related) Parameter Summary (continued)
                                                Dose Library: FGR 12 & FGR 11
0     ³                                                            ³  Current  ³   Base    ³  Parameter
 Menu ³                               Parameter                    ³   Value#  ³   Case*   ³    Name
 ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 D-5  ³ U-238     , fish                                           ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 11,1)
 D-5  ³ U-238     , crustacea and mollusks                         ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 11,2)
 D-5  ³                                                            ³           ³           ³
 D-5  ³ U-238+D   , fish                                           ³ 1.000E+01 ³ 1.000E+01 ³ BIOFAC( 12,1)
 D-5  ³ U-238+D   , crustacea and mollusks                         ³ 6.000E+01 ³ 6.000E+01 ³ BIOFAC( 12,2)
 ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
```

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

Summary : TTLF Recreational Adult 2
File   : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Site-Specific Parameter Summary

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+04	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	2.000E+00	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	8.500E-01	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	not used	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	1.000E+01	3.000E+00	---	T(3)
R011	Times for calculations (yr)	3.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	1.000E+02	3.000E+01	---	T(5)
R011	Times for calculations (yr)	3.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	6.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	7.500E+02	1.000E+03	---	T(8)
R011	Times for calculations (yr)	1.000E+03	0.000E+00	---	T(9)
R011	Times for calculations (yr)	2.300E+03	0.000E+00	---	T(10)

```
      ³                                                        ³            ³            ³
³
 R012 ³ Initial principal radionuclide (pCi/g):  Ac-227  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(1)
 R012 ³ Initial principal radionuclide (pCi/g):  Pa-231  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(2)
 R012 ³ Initial principal radionuclide (pCi/g):  Pb-210  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(3)
 R012 ³ Initial principal radionuclide (pCi/g):  Ra-226  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(4)
 R012 ³ Initial principal radionuclide (pCi/g):  Ra-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(5)
 R012 ³ Initial principal radionuclide (pCi/g):  Th-228  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(6)
 R012 ³ Initial principal radionuclide (pCi/g):  Th-230  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(7)
 R012 ³ Initial principal radionuclide (pCi/g):  Th-232  ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(8)
 R012 ³ Initial principal radionuclide (pCi/g):  U-234   ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(9)
 R012 ³ Initial principal radionuclide (pCi/g):  U-235   ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(10)
 R012 ³ Initial principal radionuclide (pCi/g):  U-238   ³ 1.000E+00 ³ 0.000E+00 ³              ---
³ S1(11)
 R012 ³ Concentration in groundwater   (pCi/L):  Ac-227  ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 1)
 R012 ³ Concentration in groundwater   (pCi/L):  Pa-231  ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 2)
 R012 ³ Concentration in groundwater   (pCi/L):  Pb-210  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 3)
 R012 ³ Concentration in groundwater   (pCi/L):  Ra-226  ³ 3.290E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 4)
 R012 ³ Concentration in groundwater   (pCi/L):  Ra-228  ³ 5.460E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 5)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-228  ³ 2.330E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 6)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-230  ³ 5.580E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 7)
 R012 ³ Concentration in groundwater   (pCi/L):  Th-232  ³ 1.730E+00 ³ 0.000E+00 ³           0.000E+00
³ W1( 8)
 R012 ³ Concentration in groundwater   (pCi/L):  U-234   ³ 7.360E+01 ³ 0.000E+00 ³           0.000E+00
³ W1( 9)
 R012 ³ Concentration in groundwater   (pCi/L):  U-235   ³ 5.350E+00 ³ 0.000E+00 ³           0.000E+00
³ W1(10)
```

```
 R012 ³ Concentration in groundwater   (pCi/L):  U-238   ³ 7.280E+01 ³ 0.000E+00 ³           0.000E+00
³ W1(11)
      ³                                                  ³           ³           ³
³
 R013 ³ Cover depth (m)                                  ³ 6.000E-01 ³ 0.000E+00 ³              ---
³ COVER0
 R013 ³ Density of cover material (g/cm**3)              ³ 1.500E+00 ³ 1.500E+00 ³              ---
³ DENSCV
 R013 ³ Cover depth erosion rate (m/yr)                  ³ 1.000E-03 ³ 1.000E-03 ³              ---
³ VCV
 R013 ³ Density of contaminated zone (g/cm**3)           ³ 1.450E+00 ³ 1.500E+00 ³              ---
³ DENSCZ
 R013 ³ Contaminated zone erosion rate (m/yr)            ³ 1.000E-03 ³ 1.000E-03 ³              ---
³ VCZ
 R013 ³ Contaminated zone total porosity                 ³ 4.500E-01 ³ 4.000E-01 ³              ---
³ TPCZ
 R013 ³ Contaminated zone field capacity                 ³ 2.000E-01 ³ 2.000E-01 ³              ---
³ FCCZ
 R013 ³ Contaminated zone hydraulic conductivity (m/yr)  ³ 2.270E+03 ³ 1.000E+01 ³              ---
³ HCCZ
 R013 ³ Contaminated zone b parameter                    ³ 4.000E+00 ³ 5.300E+00 ³              ---
³ BCZ
 R013 ³ Average annual wind speed (m/sec)                ³ 2.000E+00 ³ 2.000E+00 ³              ---
³ WIND
 R013 ³ Humidity in air (g/m**3)                         ³ not used  ³ 8.000E+00 ³              ---
³ HUMID
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 Summary : TTLF Recreational Adult 2
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                                                Site-Specific Parameter Summary (continued)
0     ³                                                  ³   User    ³           ³        Used by RESRAD
³  Parameter
 Menu ³                   Parameter                      ³   Input   ³  Default  ³ (If different from user input)
³    Name

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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R013 ³ Evapotranspiration coefficient                   ³ 7.800E-01 ³ 5.000E-01 ³              ---
³ EVAPTR
 R013 ³ Precipitation (m/yr)                             ³ 9.800E-01 ³ 1.000E+00 ³              ---
³ PRECIP
 R013 ³ Irrigation (m/yr)                                ³ 2.000E-01 ³ 2.000E-01 ³              ---
³ RI
```

```
 R013 ³ Irrigation mode                                ³ overhead  ³ overhead  ³              ---
³ IDITCH
 R013 ³ Runoff coefficient                             ³ 5.000E-01 ³ 2.000E-01 ³              ---
³ RUNOFF
 R013 ³ Watershed area for nearby stream or pond (m**2)  ³ not used  ³ 1.000E+06 ³              ---
³ WAREA
 R013 ³ Accuracy for water/soil computations           ³ not used  ³ 1.000E-03 ³              ---
³ EPS
      ³                                                ³           ³           ³
³
 R014 ³ Density of saturated zone (g/cm**3)            ³ not used  ³ 1.500E+00 ³              ---
³ DENSAQ
 R014 ³ Saturated zone total porosity                  ³ not used  ³ 4.000E-01 ³              ---
³ TPSZ
 R014 ³ Saturated zone effective porosity              ³ not used  ³ 2.000E-01 ³              ---
³ EPSZ
 R014 ³ Saturated zone field capacity                  ³ not used  ³ 2.000E-01 ³              ---
³ FCSZ
 R014 ³ Saturated zone hydraulic conductivity (m/yr)   ³ not used  ³ 1.000E+02 ³              ---
³ HCSZ
 R014 ³ Saturated zone hydraulic gradient              ³ not used  ³ 2.000E-02 ³              ---
³ HGWT
 R014 ³ Saturated zone b parameter                     ³ not used  ³ 5.300E+00 ³              ---
³ BSZ
 R014 ³ Water table drop rate (m/yr)                   ³ not used  ³ 1.000E-03 ³              ---
³ VWT
 R014 ³ Well pump intake depth (m below water table)   ³ not used  ³ 1.000E+01 ³              ---
³ DWIBWT
 R014 ³ Model: Nondispersion (ND) or Mass-Balance (MB) ³ not used  ³ ND        ³              ---
³ MODEL
 R014 ³ Well pumping rate (m**3/yr)                    ³ not used  ³ 2.500E+02 ³              ---
³ UW
      ³                                                ³           ³           ³
³
 R015 ³ Number of unsaturated zone strata              ³ not used  ³ 1         ³              ---
³ NS
      ³                                                ³           ³           ³
³
 R016 ³ Distribution coefficients for Ac-227           ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                  ³ 2.400E+03 ³ 2.000E+01 ³              ---
³ DCNUCC( 1)
 R016 ³   Saturated zone (cm**3/g)                     ³ not used  ³ 2.000E+01 ³              ---
³ DCNUCS( 1)
```

```
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           2.669E-05
³ ALEACH( 1)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 1)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Pa-231        ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)               ³ 2.700E+03 ³ 5.000E+01 ³              ---
³ DCNUCC( 2)
 R016 ³   Saturated zone (cm**3/g)                  ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS( 2)
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           2.373E-05
³ ALEACH( 2)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 2)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Pb-210        ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)               ³ 5.500E+02 ³ 1.000E+02 ³              ---
³ DCNUCC( 3)
 R016 ³   Saturated zone (cm**3/g)                  ³ not used  ³ 1.000E+02 ³              ---
³ DCNUCS( 3)
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           1.164E-04
³ ALEACH( 3)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 3)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Ra-226        ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)               ³ 9.100E+03 ³ 7.000E+01 ³              ---
³ DCNUCC( 4)
 R016 ³   Saturated zone (cm**3/g)                  ³ not used  ³ 7.000E+01 ³              ---
³ DCNUCS( 4)
 R016 ³   Leach rate (/yr)                          ³ 0.000E+00 ³ 0.000E+00 ³           7.040E-06
³ ALEACH( 4)
 R016 ³   Solubility constant                       ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 4)
      ³                                             ³           ³           ³
³
 R016 ³ Distribution coefficients for Ra-228        ³           ³           ³
³
```

```
 R016 ³   Contaminated zone (cm**3/g)                    ³ 9.100E+03 ³ 7.000E+01 ³           ---
³ DCNUCC( 5)
 R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 7.000E+01 ³           ---
³ DCNUCS( 5)
 R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³         7.040E-06
³ ALEACH( 5)
 R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³         not used
³ SOLUBK( 5)
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                                           Site-Specific Parameter Summary (continued)
0     ³                                                  ³   User    ³           ³        Used by RESRAD
³  Parameter
 Menu ³                  Parameter                       ³   Input   ³  Default  ³ (If different from user input)
³    Name

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 R016 ³ Distribution coefficients for Th-228             ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                    ³ 5.800E+03 ³ 6.000E+04 ³           ---
³ DCNUCC( 6)
 R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 6.000E+04 ³           ---
³ DCNUCS( 6)
 R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³         1.105E-05
³ ALEACH( 6)
 R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³         not used
³ SOLUBK( 6)
      ³                                                  ³           ³           ³
³
 R016 ³ Distribution coefficients for Th-230             ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                    ³ 5.800E+03 ³ 6.000E+04 ³           ---
³ DCNUCC( 7)
 R016 ³   Saturated zone (cm**3/g)                       ³ not used  ³ 6.000E+04 ³           ---
³ DCNUCS( 7)
 R016 ³   Leach rate (/yr)                               ³ 0.000E+00 ³ 0.000E+00 ³         1.105E-05
³ ALEACH( 7)
 R016 ³   Solubility constant                            ³ 0.000E+00 ³ 0.000E+00 ³         not used
³ SOLUBK( 7)
      ³                                                  ³           ³           ³
³
```

```
 R016 ³ Distribution coefficients for Th-232                ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 5.800E+03 ³ 6.000E+04 ³              ---
³ DCNUCC( 8)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 6.000E+04 ³              ---
³ DCNUCS( 8)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           1.105E-05
³ ALEACH( 8)
 R016 ³   Solubility constant                               ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 8)
      ³                                                     ³           ³           ³
³
 R016 ³ Distribution coefficients for U-234                 ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 1.600E+03 ³ 5.000E+01 ³              ---
³ DCNUCC( 9)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS( 9)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
³ ALEACH( 9)
 R016 ³   Solubility constant                               ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK( 9)
      ³                                                     ³           ³           ³
³
 R016 ³ Distribution coefficients for U-235                 ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 1.600E+03 ³ 5.000E+01 ³              ---
³ DCNUCC(10)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS(10)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
³ ALEACH(10)
 R016 ³   Solubility constant                               ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK(10)
      ³                                                     ³           ³           ³
³
 R016 ³ Distribution coefficients for U-238                 ³           ³           ³
³
 R016 ³   Contaminated zone (cm**3/g)                       ³ 1.600E+03 ³ 5.000E+01 ³              ---
³ DCNUCC(11)
 R016 ³   Saturated zone (cm**3/g)                          ³ not used  ³ 5.000E+01 ³              ---
³ DCNUCS(11)
 R016 ³   Leach rate (/yr)                                  ³ 0.000E+00 ³ 0.000E+00 ³           4.004E-05
³ ALEACH(11)
```

```
 R016 ³   Solubility constant                           ³ 0.000E+00 ³ 0.000E+00 ³           not used
³ SOLUBK(11)
      ³                                                 ³           ³           ³
³
 R017 ³ Inhalation rate (m**3/yr)                       ³ 1.400E+04 ³ 8.400E+03 ³              ---
³ INHALR
 R017 ³ Mass loading for inhalation (g/m**3)            ³ 3.000E-05 ³ 1.000E-04 ³              ---
³ MLINH
 R017 ³ Exposure duration                               ³ 3.000E+01 ³ 3.000E+01 ³              ---
³ ED
 R017 ³ Shielding factor, inhalation                    ³ 4.000E-01 ³ 4.000E-01 ³              ---
³ SHF3
 R017 ³ Shielding factor, external gamma                ³ 4.000E-01 ³ 7.000E-01 ³              ---
³ SHF1
 R017 ³ Fraction of time spent indoors                  ³ 0.000E+00 ³ 5.000E-01 ³              ---
³ FIND
 R017 ³ Fraction of time spent outdoors (on site)       ³ 1.200E-02 ³ 2.500E-01 ³              ---
³ FOTD
 R017 ³ Shape factor flag, external gamma               ³ 1.000E+00 ³ 1.000E+00 ³    >0 shows circular AREA.
³ FS
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                                          Site-Specific Parameter Summary (continued)
0     ³                                                 ³   User    ³           ³        Used by RESRAD
³  Parameter
 Menu ³                 Parameter                       ³   Input   ³  Default  ³ (If different from user input)
³    Name

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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R017 ³ Radii of shape factor array (used if FS = -1):  ³           ³           ³
³
 R017 ³   Outer annular radius (m), ring  1:            ³ not used  ³ 5.000E+01 ³              ---
³ RAD_SHAPE( 1)
 R017 ³   Outer annular radius (m), ring  2:            ³ not used  ³ 7.071E+01 ³              ---
³ RAD_SHAPE( 2)
 R017 ³   Outer annular radius (m), ring  3:            ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 3)
 R017 ³   Outer annular radius (m), ring  4:            ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 4)
 R017 ³   Outer annular radius (m), ring  5:            ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 5)
```

```
 R017 ³   Outer annular radius (m), ring  6:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 6)
 R017 ³   Outer annular radius (m), ring  7:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 7)
 R017 ³   Outer annular radius (m), ring  8:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 8)
 R017 ³   Outer annular radius (m), ring  9:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE( 9)
 R017 ³   Outer annular radius (m), ring 10:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE(10)
 R017 ³   Outer annular radius (m), ring 11:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE(11)
 R017 ³   Outer annular radius (m), ring 12:             ³ not used  ³ 0.000E+00 ³              ---
³ RAD_SHAPE(12)
      ³                                                  ³           ³           ³
³
 R017 ³ Fractions of annular areas within AREA:          ³           ³           ³
³
 R017 ³   Ring  1                                        ³ not used  ³ 1.000E+00 ³              ---
³ FRACA( 1)
 R017 ³   Ring  2                                        ³ not used  ³ 2.732E-01 ³              ---
³ FRACA( 2)
 R017 ³   Ring  3                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 3)
 R017 ³   Ring  4                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 4)
 R017 ³   Ring  5                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 5)
 R017 ³   Ring  6                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 6)
 R017 ³   Ring  7                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 7)
 R017 ³   Ring  8                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 8)
 R017 ³   Ring  9                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA( 9)
 R017 ³   Ring 10                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA(10)
 R017 ³   Ring 11                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA(11)
 R017 ³   Ring 12                                        ³ not used  ³ 0.000E+00 ³              ---
³ FRACA(12)
      ³                                                  ³           ³           ³
³
```

```
 R018 ³ Fruits, vegetables and grain consumption (kg/yr) ³ not used  ³ 1.600E+02 ³              ---
³ DIET(1)
 R018 ³ Leafy vegetable consumption (kg/yr)              ³ not used  ³ 1.400E+01 ³              ---
³ DIET(2)
 R018 ³ Milk consumption (L/yr)                          ³ not used  ³ 9.200E+01 ³              ---
³ DIET(3)
 R018 ³ Meat and poultry consumption (kg/yr)             ³ not used  ³ 6.300E+01 ³              ---
³ DIET(4)
 R018 ³ Fish consumption (kg/yr)                         ³ not used  ³ 5.400E+00 ³              ---
³ DIET(5)
 R018 ³ Other seafood consumption (kg/yr)                ³ not used  ³ 9.000E-01 ³              ---
³ DIET(6)
 R018 ³ Soil ingestion rate (g/yr)                       ³ 3.650E+01 ³ 3.650E+01 ³              ---
³ SOIL
 R018 ³ Drinking water intake (L/yr)                     ³ not used  ³ 5.100E+02 ³              ---
³ DWI
 R018 ³ Contamination fraction of drinking water         ³ not used  ³ 1.000E+00 ³              ---
³ FDW
 R018 ³ Contamination fraction of household water        ³ not used  ³ 1.000E+00 ³              ---
³ FHHW
 R018 ³ Contamination fraction of livestock water        ³ not used  ³ 1.000E+00 ³              ---
³ FLW
 R018 ³ Contamination fraction of irrigation water       ³ not used  ³ 1.000E+00 ³              ---
³ FIRW
 R018 ³ Contamination fraction of aquatic food           ³ not used  ³ 5.000E-01 ³              ---
³ FR9
 R018 ³ Contamination fraction of plant food             ³ not used  ³-1         ³              ---
³ FPLANT
 R018 ³ Contamination fraction of meat                   ³ not used  ³-1         ³              ---
³ FMEAT
 R018 ³ Contamination fraction of milk                   ³ not used  ³-1         ³              ---
³ FMILK
      ³                                                  ³           ³           ³
³
 R019 ³ Livestock fodder intake for meat (kg/day)        ³ not used  ³ 6.800E+01 ³              ---
³ LFI5
 R019 ³ Livestock fodder intake for milk (kg/day)        ³ not used  ³ 5.500E+01 ³              ---
³ LFI6
 R019 ³ Livestock water intake for meat (L/day)          ³ not used  ³ 5.000E+01 ³              ---
³ LWI5
 R019 ³ Livestock water intake for milk (L/day)          ³ not used  ³ 1.600E+02 ³              ---
³ LWI6
 R019 ³ Livestock soil intake (kg/day)                   ³ not used  ³ 5.000E-01 ³              ---
³ LSI
```

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	not used	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	not used	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	not used	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	not used	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	not used	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	not used	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	not used	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	not used	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	not used	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	not used	1.000E+00	---	TIV(2)

```
 R19B ³ Translocation Factor for  Fodder                ³ not used  ³ 1.000E+00 ³              ---
³ TIV(3)
 R19B ³ Dry Foliar Interception Fraction for  Non-Leafy  ³ not used  ³ 2.500E-01 ³              ---
³ RDRY(1)
 R19B ³ Dry Foliar Interception Fraction for  Leafy      ³ not used  ³ 2.500E-01 ³              ---
³ RDRY(2)
 R19B ³ Dry Foliar Interception Fraction for  Fodder     ³ not used  ³ 2.500E-01 ³              ---
³ RDRY(3)
 R19B ³ Wet Foliar Interception Fraction for  Non-Leafy  ³ not used  ³ 2.500E-01 ³              ---
³ RWET(1)
 R19B ³ Wet Foliar Interception Fraction for  Leafy      ³ not used  ³ 2.500E-01 ³              ---
³ RWET(2)
 R19B ³ Wet Foliar Interception Fraction for  Fodder     ³ not used  ³ 2.500E-01 ³              ---
³ RWET(3)
 R19B ³ Weathering Removal Constant for Vegetation       ³ not used  ³ 2.000E+01 ³              ---
³ WLAM
      ³                                                 ³           ³           ³
³
 C14  ³ C-12 concentration in water (g/cm**3)           ³ not used  ³ 2.000E-05 ³              ---
³ C12WTR
 C14  ³ C-12 concentration in contaminated soil (g/g)    ³ not used  ³ 3.000E-02 ³              ---
³ C12CZ
 C14  ³ Fraction of vegetation carbon from soil          ³ not used  ³ 2.000E-02 ³              ---
³ CSOIL
 C14  ³ Fraction of vegetation carbon from air           ³ not used  ³ 9.800E-01 ³              ---
³ CAIR
 C14  ³ C-14 evasion layer thickness in soil (m)         ³ not used  ³ 3.000E-01 ³              ---
³ DMC
 C14  ³ C-14 evasion flux rate from soil (1/sec)         ³ not used  ³ 7.000E-07 ³              ---
³ EVSN
 C14  ³ C-12 evasion flux rate from soil (1/sec)         ³ not used  ³ 1.000E-10 ³              ---
³ REVSN
 C14  ³ Fraction of grain in beef cattle feed            ³ not used  ³ 8.000E-01 ³              ---
³ AVFG4
 C14  ³ Fraction of grain in milk cow feed               ³ not used  ³ 2.000E-01 ³              ---
³ AVFG5
      ³                                                 ³           ³           ³
³
 STOR ³ Storage times of contaminated foodstuffs (days): ³           ³           ³
³
 STOR ³   Fruits, non-leafy vegetables, and grain        ³ 1.400E+01 ³ 1.400E+01 ³              ---
³ STOR_T(1)
 STOR ³   Leafy vegetables                               ³ 1.000E+00 ³ 1.000E+00 ³              ---
³ STOR_T(2)
```

```
 STOR ³   Milk                                        ³ 1.000E+00 ³ 1.000E+00 ³             ---
³ STOR_T(3)
 STOR ³   Meat and poultry                            ³ 2.000E+01 ³ 2.000E+01 ³             ---
³ STOR_T(4)
 STOR ³   Fish                                        ³ 7.000E+00 ³ 7.000E+00 ³             ---
³ STOR_T(5)
 STOR ³   Crustacea and mollusks                      ³ 7.000E+00 ³ 7.000E+00 ³             ---
³ STOR_T(6)
 STOR ³   Well water                                  ³ 1.000E+00 ³ 1.000E+00 ³             ---
³ STOR_T(7)
 STOR ³   Surface water                               ³ 1.000E+00 ³ 1.000E+00 ³             ---
³ STOR_T(8)
 STOR ³   Livestock fodder                            ³ 4.500E+01 ³ 4.500E+01 ³             ---
³ STOR_T(9)
      ³                                               ³           ³           ³
³
 R021 ³ Thickness of building foundation (m)          ³ not used  ³ 1.500E-01 ³             ---
³ FLOOR1
 R021 ³ Bulk density of building foundation (g/cm**3) ³ not used  ³ 2.400E+00 ³             ---
³ DENSFL
 R021 ³ Total porosity of the cover material          ³ not used  ³ 4.000E-01 ³             ---
³ TPCV
 R021 ³ Total porosity of the building foundation     ³ not used  ³ 1.000E-01 ³             ---
³ TPFL
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                                          Site-Specific Parameter Summary (continued)
0     ³                                               ³   User    ³           ³         Used by RESRAD
³  Parameter
 Menu ³                  Parameter                    ³   Input   ³  Default  ³ (If different from user input)
³    Name
ÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 R021 ³ Volumetric water content of the cover material ³ not used  ³ 5.000E-02 ³             ---
³ PH2OCV
 R021 ³ Volumetric water content of the foundation    ³ not used  ³ 3.000E-02 ³             ---
³ PH2OFL
 R021 ³ Diffusion coefficient for radon gas (m/sec):  ³           ³           ³
³
 R021 ³   in cover material                           ³ not used  ³ 2.000E-06 ³             ---
³ DIFCV
```

```
 R021 ³   in foundation material                      ³ not used  ³ 3.000E-07 ³              ---
³ DIFFL
 R021 ³   in contaminated zone soil                   ³ not used  ³ 2.000E-06 ³              ---
³ DIFCZ
 R021 ³ Radon vertical dimension of mixing (m)        ³ not used  ³ 2.000E+00 ³              ---
³ HMIX
 R021 ³ Average building air exchange rate (1/hr)     ³ not used  ³ 5.000E-01 ³              ---
³ REXG
 R021 ³ Height of the building (room) (m)             ³ not used  ³ 2.500E+00 ³              ---
³ HRM
 R021 ³ Building interior area factor                 ³ not used  ³ 0.000E+00 ³              ---
³ FAI
 R021 ³ Building depth below ground surface (m)       ³ not used  ³-1.000E+00 ³              ---
³ DMFL
 R021 ³ Emanating power of Rn-222 gas                 ³ not used  ³ 2.500E-01 ³              ---
³ EMANA(1)
 R021 ³ Emanating power of Rn-220 gas                 ³ not used  ³ 1.500E-01 ³              ---
³ EMANA(2)
      ³                                               ³           ³           ³
³
 TITL ³ Number of graphical time points               ³     32    ³    ---    ³              ---
³ NPTS
 TITL ³ Maximum number of integration points for dose ³     17    ³    ---    ³              ---
³ LYMAX
 TITL ³ Maximum number of integration points for risk ³    257    ³    ---    ³              ---
³ KYMAX

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                      Summary of Pathway Selections

                     Pathway              ³   User Selection
           ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
              1 -- external gamma         ³       active
              2 -- inhalation (w/o radon) ³       active
              3 -- plant ingestion        ³     suppressed
              4 -- meat ingestion         ³     suppressed
              5 -- milk ingestion         ³     suppressed
              6 -- aquatic foods          ³     suppressed
              7 -- drinking water         ³     suppressed
              8 -- soil ingestion         ³       active
```

```
              9 -- radon                  ³     suppressed
              Find peak pathway doses     ³       active
           ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  12
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      Contaminated Zone Dimensions            Initial Soil Concentrations, pCi/g
      ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ            ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
        Area:  10000.00 square meters                Ac-227     1.000E+00
   Thickness:      2.00 meters                       Pa-231     1.000E+00

 Cover Depth:      0.60 meters                       Pb-210     1.000E+00

                                                     Ra-226     1.000E+00
                                                     Ra-228     1.000E+00
                                                     Th-228     1.000E+00
                                                     Th-230     1.000E+00
                                                     Th-232     1.000E+00
                                                     U-234      1.000E+00
                                                     U-235      1.000E+00
                                                     U-238      1.000E+00
0
                                                 Total Dose TDOSE(t), mrem/yr

                                           Basic Radiation Dose Limit = 2.500E+01 mrem/yr

                              Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

                              ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

    t (years):  0.000E+00  1.000E+00  1.000E+01  3.000E+01  1.000E+02  3.000E+02  6.000E+02  7.500E+02  1.000E+03
2.300E+03
     TDOSE(t):  4.823E-04  4.873E-04  5.342E-04  6.557E-04  1.349E-03  1.110E-02  3.687E-01  3.680E-01  3.669E-01
3.563E-01
         M(t):  1.929E-05  1.949E-05  2.137E-05  2.623E-05  5.396E-05  4.441E-04  1.475E-02  1.472E-02  1.468E-02
1.425E-02
0Maximum TDOSE(t):  3.698E-01 mrem/yr   at t =     599 ñ 1 years
0
                             Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                          As mrem/yr and Fraction of Total Dose At t = 5.988E+02 years
0                                            Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon              Plant              Meat              Milk
```

```
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 Nuclide
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  1.163E-10 0.0000  2.906E-11 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.283E-11 0.0000
 Pa-231  2.436E-02 0.0659  6.622E-03 0.0179  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.079E-02 0.0292
 Pb-210  5.093E-13 0.0000  1.492E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.402E-11 0.0000
 Ra-226  9.743E-02 0.2635  2.090E-05 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.905E-03 0.0079
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.878E-02 0.0778  2.796E-04 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.050E-03 0.0028
 Th-232  1.824E-01 0.4932  1.680E-03 0.0045  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.158E-03 0.0058
 U-234   8.447E-05 0.0002  1.108E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.237E-04 0.0003
 U-235   8.707E-03 0.0235  1.824E-04 0.0005  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.466E-04 0.0007
 U-238   1.676E-03 0.0045  9.809E-05 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.146E-04 0.0003
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 Total   3.434E-01 0.9287  8.994E-03 0.0243  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.738E-02 0.0470
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 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                        As mrem/yr and Fraction of Total Dose At t = 5.988E+02 years
0                                                   Water Dependent Pathways
0              Water              Fish              Radon             Plant             Meat              Milk
    All Pathways*
```

```
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 Nuclide
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.782E-10 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.177E-02 0.1130
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.468E-11 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.004E-01 0.2714
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.011E-02 0.0814
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.862E-01 0.5036
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.190E-04 0.0009
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.136E-03 0.0247
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.889E-03 0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.698E-01 1.0000
0*Sum of all water independent and dependent pathways.
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 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                       As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
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 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  1.056E-06 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  7.969E-08 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  4.115E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  1.272E-04 0.2637  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  8.422E-05 0.1746  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  2.651E-04 0.5496  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  2.761E-08 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  4.221E-06 0.0088  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   1.753E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   3.294E-08 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   4.277E-07 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   4.823E-04 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.056E-06 0.0022
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.969E-08 0.0002
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.115E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.272E-04 0.2637
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.422E-05 0.1746
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.651E-04 0.5496
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.761E-08 0.0001
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.221E-06 0.0088
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.753E-13 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.294E-08 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.277E-07 0.0009
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.823E-04 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  15
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                       As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
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 Ac-227  1.039E-06 0.0021  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  1.147E-07 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  4.058E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  1.286E-04 0.2639  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.518E-04 0.3115  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  1.863E-04 0.3822  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  8.363E-08 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  1.892E-05 0.0388  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   6.811E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   3.363E-08 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   4.335E-07 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   4.873E-04 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                    Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                              As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.039E-06 0.0021
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.147E-07 0.0002
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  4.058E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.286E-04 0.2639
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.518E-04 0.3115
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.863E-04 0.3822
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.363E-08 0.0002
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.892E-05 0.0388
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.811E-13 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.363E-08 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.335E-07 0.0009
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.873E-04 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  16
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  8.982E-07 0.0017  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  4.311E-07 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  3.580E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Ra-226  1.418E-04 0.2653  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.473E-04 0.2757  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  7.782E-06 0.0146  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  6.463E-07 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  2.349E-04 0.4397  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   3.071E-11 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   4.056E-08 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   4.893E-07 0.0009  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   5.342E-04 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.982E-07 0.0017
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.311E-07 0.0008
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.580E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.418E-04 0.2653
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.473E-04 0.2757
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  7.782E-06 0.0146
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.463E-07 0.0012
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.349E-04 0.4397
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.071E-11 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.056E-08 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.893E-07 0.0009
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.342E-04 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  17
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  6.499E-07 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  1.171E-06 0.0018  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  2.717E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  1.761E-04 0.2685  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.732E-05 0.0264  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  6.709E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Th-230  2.342E-06 0.0036  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  4.574E-04 0.6976  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   3.223E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   6.169E-08 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   6.403E-07 0.0010  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Total   6.557E-04 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years
0                                                     Water Dependent Pathways
0              Water              Fish               Radon              Plant              Meat               Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.499E-07 0.0010
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.171E-06 0.0018
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.717E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.761E-04 0.2685
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.732E-05 0.0264
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.709E-09 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.342E-06 0.0036
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.574E-04 0.6976
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  3.223E-10 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.169E-08 0.0001
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.403E-07 0.0010
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.557E-04 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  18
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  2.113E-07 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  5.319E-06 0.0039  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  1.066E-10 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  3.764E-04 0.2790  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  7.437E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  1.263E-19 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  1.674E-05 0.0124  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  9.485E-04 0.7031  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   7.621E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 U-235   2.686E-07 0.0002  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   1.642E-06 0.0012  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   1.349E-03 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.113E-07 0.0002
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.319E-06 0.0039
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.066E-10 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.764E-04 0.2790
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.437E-09 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.263E-19 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.674E-05 0.0124
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.485E-04 0.7031
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.621E-09 0.0000
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.686E-07 0.0002
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.642E-06 0.0012
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.349E-03 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  19
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  9.273E-09 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  1.432E-04 0.0129  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pb-210  8.959E-12 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  3.329E-03 0.2999  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-228  1.838E-18 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  4.620E-04 0.0416  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-232  7.127E-03 0.6419  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-234   6.371E-07 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-235   1.708E-05 0.0015  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 U-238   2.425E-05 0.0022  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
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 Total   1.110E-02 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years
0                                                     Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.273E-09 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.432E-04 0.0129
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.959E-12 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.329E-03 0.2999
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.838E-18 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.620E-04 0.0416
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.127E-03 0.6419
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  6.371E-07 0.0001
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.708E-05 0.0015
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.425E-05 0.0022
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.110E-02 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  20
 Summary : TTLF Recreational Adult 2
```

File : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 6.000E+02 years

0 Water Independent Pathways (Inhalation excludes radon)

0 Radio- Nuclide	Ground mrem/yr	Ground fract.	Inhalation mrem/yr	Inhalation fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	Soil mrem/yr	Soil fract.
Ac-227	1.122E-10	0.0000	2.814E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.179E-11	0.0000
Pa-231	2.438E-02	0.0661	6.651E-03	0.0180	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.083E-02	0.0294
Pb-210	5.133E-13	0.0000	1.445E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.327E-11	0.0000
Ra-226	9.698E-02	0.2630	2.098E-05	0.0001	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.917E-03	0.0079
Ra-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-228	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Th-230	2.871E-02	0.0779	2.808E-04	0.0008	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.056E-03	0.0029
Th-232	1.817E-01	0.4927	1.687E-03	0.0046	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.167E-03	0.0059
U-234	8.504E-05	0.0002	1.113E-04	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.243E-04	0.0003
U-235	8.747E-03	0.0237	1.834E-04	0.0005	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.479E-04	0.0007
U-238	1.677E-03	0.0045	9.851E-05	0.0003	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.151E-04	0.0003
Total	3.422E-01	0.9282	9.033E-03	0.0245	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.746E-02	0.0473

0

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 6.000E+02 years

```
0                                                    Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.721E-10 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.186E-02 0.1135
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.393E-11 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.991E-02 0.2710
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.005E-02 0.0815
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.855E-01 0.5031
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.206E-04 0.0009
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.178E-03 0.0249
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.890E-03 0.0051
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 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.687E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  21
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                  As mrem/yr and Fraction of Total Dose At t = 7.500E+02 years
0                                    Water Independent Pathways (Inhalation excludes radon)
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0              Ground          Inhalation           Radon              Plant              Meat               Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  9.426E-13 0.0000  2.364E-13 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.671E-13 0.0000
 Pa-231  2.422E-02 0.0658  6.606E-03 0.0179  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.076E-02 0.0292
 Pb-210  4.764E-15 0.0000  1.341E-15 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.160E-13 0.0000
 Ra-226  9.078E-02 0.2466  1.964E-05 0.0001  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.730E-03 0.0074
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  3.471E-02 0.0943  2.812E-04 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.236E-03 0.0034
 Th-232  1.814E-01 0.4928  1.684E-03 0.0046  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.164E-03 0.0059
 U-234   1.272E-04 0.0003  1.109E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.250E-04 0.0003
 U-235   8.771E-03 0.0238  2.032E-04 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.806E-04 0.0008
 U-238   1.667E-03 0.0045  9.797E-05 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.145E-04 0.0003
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.416E-01 0.9282  9.004E-03 0.0245  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.741E-02 0.0473
0
```

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

As mrem/yr and Fraction of Total Dose At t = 7.500E+02 years

```
0                                                  Water Dependent Pathways
0              Water             Fish              Radon              Plant              Meat               Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
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fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.446E-12 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.158E-02 0.1130
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.221E-13 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.353E-02 0.2541
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.623E-02 0.0984
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.852E-01 0.5032
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.632E-04 0.0010
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.255E-03 0.0251
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.879E-03 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.680E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  22
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                       As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                         Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  3.273E-16 0.0000  8.211E-17 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.275E-17 0.0000
 Pa-231  2.395E-02 0.0653  6.533E-03 0.0178  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.064E-02 0.0290
 Pb-210  1.952E-18 0.0000  5.496E-19 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.850E-17 0.0000
 Ra-226  8.132E-02 0.2216  1.760E-05 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.446E-03 0.0067
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  4.382E-02 0.1194  2.818E-04 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.509E-03 0.0041
 Th-232  1.809E-01 0.4929  1.680E-03 0.0046  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.158E-03 0.0059
 U-234   2.140E-04 0.0006  1.104E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.268E-04 0.0003
 U-235   8.811E-03 0.0240  2.358E-04 0.0006  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.341E-04 0.0009
 U-238   1.650E-03 0.0045  9.707E-05 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.134E-04 0.0003
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 Total   3.406E-01 0.9284  8.955E-03 0.0244  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.733E-02 0.0472
0
                    Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                              As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years
0                                                  Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.022E-16 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  4.112E-02 0.1121
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.101E-17 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  8.378E-02 0.2283
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.562E-02 0.1243
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.847E-01 0.5034
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.511E-04 0.0012
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  9.381E-03 0.0256
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.861E-03 0.0051
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.669E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  23
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 2.300E+03 years
0                                       Water Independent Pathways (Inhalation excludes radon)
0             Ground          Inhalation           Radon             Plant             Meat              Milk
        Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  2.284E-02 0.0641  6.162E-03 0.0173  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.004E-02 0.0282
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 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  4.540E-02 0.1274  9.928E-06 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.380E-03 0.0039
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  7.627E-02 0.2140  2.820E-04 0.0008  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.504E-03 0.0070
 Th-232  1.746E-01 0.4901  1.656E-03 0.0046  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  2.127E-03 0.0060
 U-234   9.023E-04 0.0025  1.076E-04 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.434E-04 0.0004
 U-235   9.089E-03 0.0255  3.939E-04 0.0011  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  5.941E-04 0.0017
 U-238   1.575E-03 0.0044  9.254E-05 0.0003  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.081E-04 0.0003
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   3.307E-01 0.9282  8.704E-03 0.0244  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.689E-02 0.0474
0
                        Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)

                                     As mrem/yr and Fraction of Total Dose At t = 2.300E+03 years
0                                                   Water Dependent Pathways
0              Water             Fish              Radon             Plant             Meat              Milk
    All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr
fract.   mrem/yr  fract.
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 Ac-227  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Pa-231  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.904E-02 0.1096
 Pb-210  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Ra-226  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  4.679E-02 0.1313
 Ra-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
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0.0000  0.000E+00 0.0000
 Th-228  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  0.000E+00 0.0000
 Th-230  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  7.905E-02 0.2219
 Th-232  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.784E-01 0.5007
 U-234   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.153E-03 0.0032
 U-235   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.008E-02 0.0283
 U-238   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  1.776E-03 0.0050
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ÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍ
 Total   0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00
0.0000  3.563E-01 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  24
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                                        Dose/Source Ratios Summed Over All Pathways

                                 Parent and Progeny Principal Radionuclide Contributions Indicated

0  Parent    Product    Thread                                DSR(j,t) At Time in Years   (mrem/yr)/(pCi/g)

    (i)        (j)     Fraction   0.000E+00 1.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 6.000E+02 7.500E+02
1.000E+03 2.300E+03
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 Ac-227+D   Ac-227+D   1.000E+00  1.056E-06 1.039E-06 8.982E-07 6.499E-07 2.113E-07 9.273E-09 1.721E-10 1.446E-12
5.022E-16 5.191E-34
0Pa-231     Pa-231     1.000E+00  6.274E-08 6.384E-08 7.463E-08 1.056E-07 3.558E-07 1.145E-05 7.688E-03 7.636E-03
7.551E-03 7.148E-03
 Pa-231     Ac-227+D   1.000E+00  1.695E-08 5.083E-08 3.565E-07 1.066E-06 4.963E-06 1.317E-04 3.418E-02 3.395E-02
3.357E-02 3.189E-02
 Pa-231     äDSR(j)               7.969E-08 1.147E-07 4.311E-07 1.171E-06 5.319E-06 1.432E-04 4.186E-02 4.158E-02
4.112E-02 3.904E-02
0Pb-210+D   Pb-210+D   1.000E+00  4.115E-10 4.058E-10 3.580E-10 2.717E-10 1.066E-10 8.959E-12 2.393E-11 2.221E-13
9.101E-17 2.211E-34
0Ra-226+D   Ra-226+D   1.000E+00  1.272E-04 1.286E-04 1.418E-04 1.761E-04 3.764E-04 3.329E-03 9.737E-02 9.115E-02
8.165E-02 4.558E-02
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 Ra-226+D   Pb-210+D   1.000E+00  6.447E-12 1.937E-11 1.379E-10 4.270E-10 2.263E-09 9.354E-08 2.542E-03 2.380E-03
2.132E-03 1.203E-03
 Ra-226+D   äDSR(j)               1.272E-04 1.286E-04 1.418E-04 1.761E-04 3.764E-04 3.329E-03 9.991E-02 9.353E-02
8.378E-02 4.679E-02
0Ra-228+D   Ra-228+D   1.000E+00  3.526E-05 3.165E-05 1.196E-05 1.377E-06 7.119E-10 2.901E-19 2.478E-33 3.473E-41
0.000E+00 0.000E+00
 Ra-228+D   Th-228+D   1.000E+00  4.895E-05 1.201E-04 1.353E-04 1.594E-05 6.725E-09 1.548E-18 6.316E-33 8.851E-41
0.000E+00 0.000E+00
 Ra-228+D   äDSR(j)               8.422E-05 1.518E-04 1.473E-04 1.732E-05 7.437E-09 1.838E-18 8.794E-33 1.232E-40
0.000E+00 0.000E+00
0Th-228+D   Th-228+D   1.000E+00  2.651E-04 1.863E-04 7.782E-06 6.709E-09 1.263E-19 0.000E+00 0.000E+00 0.000E+00
0.000E+00 0.000E+00
0Th-230     Th-230     1.000E+00  6.231E-13 6.408E-13 8.247E-13 1.445E-12 1.028E-11 2.796E-09 5.257E-04 5.242E-04
5.215E-04 5.082E-04
 Th-230     Ra-226+D   1.000E+00  2.760E-08 8.363E-08 6.463E-07 2.342E-06 1.674E-05 4.620E-04 2.881E-02 3.484E-02
4.399E-02 7.657E-02
 Th-230     Pb-210+D   1.000E+00  9.348E-16 6.581E-15 3.313E-13 3.271E-12 7.256E-11 1.151E-08 7.068E-04 8.643E-04
1.103E-03 1.977E-03
 Th-230     äDSR(j)               2.761E-08 8.363E-08 6.463E-07 2.342E-06 1.674E-05 4.620E-04 3.005E-02 3.623E-02
4.562E-02 7.905E-02
0Th-232     Th-232     1.000E+00  3.838E-14 3.960E-14 5.243E-14 9.784E-14 8.683E-13 4.443E-10 2.584E-03 2.580E-03
2.573E-03 2.536E-03
 Th-232     Ra-228+D   1.000E+00  2.173E-06 6.255E-06 3.043E-05 5.300E-05 1.299E-04 1.563E-03 6.774E-02 6.763E-02
6.744E-02 6.623E-02
 Th-232     Th-228+D   1.000E+00  2.048E-06 1.267E-05 2.045E-04 4.044E-04 8.186E-04 5.564E-03 1.152E-01 1.150E-01
1.147E-01 1.097E-01
 Th-232     äDSR(j)               4.221E-06 1.892E-05 2.349E-04 4.574E-04 9.485E-04 7.127E-03 1.855E-01 1.852E-01
1.847E-01 1.784E-01
0U-234      U-234      1.000E+00  9.242E-14 9.514E-14 1.236E-13 2.210E-13 1.689E-12 5.644E-10 2.351E-04 2.336E-04
2.311E-04 2.186E-04
 U-234      Th-230     1.000E+00  2.818E-18 8.666E-18 7.795E-17 3.965E-16 9.287E-15 7.537E-12 2.823E-06 3.511E-06
4.644E-06 1.025E-05
 U-234      Ra-226+D   1.000E+00  8.291E-14 5.859E-13 3.059E-11 3.221E-10 7.619E-09 6.365E-07 8.077E-05 1.231E-04
2.103E-04 9.015E-04
 U-234      Pb-210+D   1.000E+00  2.109E-21 3.188E-20 1.074E-17 3.219E-16 2.641E-14 1.433E-11 1.878E-06 2.924E-06
5.101E-06 2.292E-05
 U-234      äDSR(j)               1.753E-13 6.811E-13 3.071E-11 3.223E-10 7.621E-09 6.371E-07 3.206E-04 3.632E-04
4.511E-04 1.153E-03
0U-235+D    U-235+D    1.000E+00  3.294E-08 3.363E-08 4.050E-08 6.123E-08 2.601E-07 1.625E-05 8.668E-03 8.616E-03
8.531E-03 8.187E-03
 U-235+D    Pa-231     1.000E+00  6.656E-13 2.028E-12 1.658E-11 6.815E-11 7.568E-10 7.284E-08 9.782E-05 1.215E-04
1.602E-04 3.499E-04
 U-235+D    Ac-227+D   1.000E+00  1.200E-13 8.437E-13 4.183E-11 3.988E-10 7.705E-09 7.506E-07 4.121E-04 5.174E-04
6.899E-04 1.540E-03
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 U-235+D    äDSR(j)                3.294E-08 3.363E-08 4.056E-08 6.169E-08 2.686E-07 1.708E-05 9.178E-03 9.255E-03
9.381E-03 1.008E-02
0U-238      U-238      5.400E-05  4.271E-28 4.555E-28 8.137E-28 2.954E-27 2.691E-25 1.069E-19 1.126E-08 1.119E-08
1.108E-08 1.052E-08
0U-238+D    U-238+D    9.999E-01  4.277E-07 4.335E-07 4.893E-07 6.403E-07 1.642E-06 2.425E-05 1.890E-03 1.878E-03
1.860E-03 1.772E-03
 U-238+D    U-234      9.999E-01  1.316E-19 4.052E-19 3.679E-18 1.911E-17 4.813E-16 4.810E-13 4.006E-07 4.975E-07
6.564E-07 1.430E-06
 U-238+D    Th-230     9.999E-01  2.669E-24 1.913E-23 1.161E-21 1.714E-20 1.323E-18 3.208E-15 2.398E-09 3.727E-09
6.567E-09 3.321E-08
 U-238+D    Ra-226+D   9.999E-01  5.879E-20 8.903E-19 3.041E-16 9.294E-15 7.259E-13 1.825E-10 4.669E-08 8.937E-08
2.049E-07 2.092E-06
 U-238+D    Pb-210+D   9.999E-01  1.198E-27 3.748E-26 8.138E-23 7.270E-21 2.110E-18 3.757E-15 1.033E-09 2.037E-09
4.818E-09 5.242E-08
 U-238+D    äDSR(j)                4.277E-07 4.335E-07 4.893E-07 6.403E-07 1.642E-06 2.425E-05 1.890E-03 1.879E-03
1.861E-03 1.776E-03
 ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ
 The DSR includes contributions from associated (half-life ó 180 days) daughters.

1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  25
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                                    Single Radionuclide Soil Guidelines G(i,t) in pCi/g

                                       Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide
   (i)    t= 0.000E+00   1.000E+00   1.000E+01   3.000E+01   1.000E+02   3.000E+02   6.000E+02   7.500E+02
1.000E+03   2.300E+03
 ÄÄÄÄÄÄÄ     ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ   ÄÄÄÄÄÄÄÄÄ
 Ac-227      2.367E+07   2.405E+07   2.783E+07   3.847E+07   1.183E+08   2.696E+09   1.452E+11   1.729E+13
*7.232E+13  *7.232E+13
 Pa-231      3.137E+08   2.180E+08   5.799E+07   2.134E+07   4.700E+06   1.746E+05   5.972E+02   6.012E+02
6.080E+02   6.404E+02
 Pb-210      6.075E+10   6.160E+10   6.983E+10   9.202E+10   2.345E+11   2.791E+12   1.045E+12  *7.634E+13
*7.634E+13  *7.634E+13
 Ra-226      1.966E+05   1.944E+05   1.764E+05   1.420E+05   6.642E+04   7.509E+03   2.502E+02   2.673E+02
2.984E+02   5.343E+02
 Ra-228      2.969E+05   1.647E+05   1.697E+05   1.444E+06   3.362E+09  *2.726E+14  *2.726E+14  *2.726E+14
*2.726E+14  *2.726E+14
 Th-228      9.432E+04   1.342E+05   3.212E+06   3.726E+09  *8.195E+14  *8.195E+14  *8.195E+14  *8.195E+14
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*8.195E+14  *8.195E+14
 Th-230      9.056E+08   2.989E+08   3.868E+07   1.068E+07   1.494E+06   5.412E+04   8.321E+02   6.901E+02
5.481E+02   3.162E+02
 Th-232     *1.097E+05  *1.097E+05   1.064E+05   5.465E+04   2.636E+04   3.508E+03   1.348E+02   1.350E+02
1.354E+02   1.401E+02
 U-234      *6.247E+09  *6.247E+09  *6.247E+09  *6.247E+09   3.281E+09   3.924E+07   7.799E+04   6.884E+04
5.542E+04   2.168E+04
 U-235      *2.161E+06  *2.161E+06  *2.161E+06  *2.161E+06  *2.161E+06   1.464E+06   2.724E+03   2.701E+03
2.665E+03   2.481E+03
 U-238      *3.361E+05  *3.361E+05  *3.361E+05  *3.361E+05  *3.361E+05  *3.361E+05   1.323E+04   1.330E+04
1.344E+04   1.408E+04
 ÍÍÍÍÍÍÍ     ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ
ÍÍÍÍÍÍÍÍÍ   ÍÍÍÍÍÍÍÍÍ
 *At specific activity limit
0
             Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
             and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
          at tmin = time of minimum single radionuclide soil guideline
      and at tmax = time of maximum total dose =     599 ñ 1 years
0Nuclide  Initial         tmin       DSR(i,tmin) G(i,tmin) DSR(i,tmax) G(i,tmax)
   (i)    (pCi/g)       (years)                   (pCi/g)              (pCi/g)
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ
 Ac-227  1.000E+00     0.000E+00      1.056E-06  2.367E+07  1.782E-10  1.403E+11
 Pa-231  1.000E+00      600 ñ 1       4.186E-02  5.972E+02  4.177E-02  5.985E+02
 Pb-210  1.000E+00     0.000E+00      4.115E-10  6.075E+10  2.468E-11  1.013E+12
 Ra-226  1.000E+00      599 ñ 1       1.004E-01  2.491E+02  1.004E-01  2.491E+02
 Ra-228  1.000E+00    3.990 ñ 0.008   2.122E-04  1.178E+05  0.000E+00 *2.726E+14
 Th-228  1.000E+00     0.000E+00      2.651E-04  9.432E+04  0.000E+00 *8.195E+14
 Th-230  1.000E+00     2.300E+03      7.905E-02  3.162E+02  3.011E-02  8.303E+02
 Th-232  1.000E+00      599 ñ 1       1.862E-01  1.343E+02  1.862E-01  1.343E+02
 U-234   1.000E+00     2.300E+03      1.153E-03  2.168E+04  3.190E-04  7.837E+04
 U-235   1.000E+00     2.300E+03      1.008E-02  2.481E+03  9.136E-03  2.736E+03
 U-238   1.000E+00      600 ñ 1       1.890E-03  1.323E+04  1.889E-03  1.324E+04
 ÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ  ÍÍÍÍÍÍÍÍÍ
 *At specific activity limit

1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  26
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                                          Individual Nuclide Dose Summed Over All Pathways
                                            Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                                DOSE(j,t), mrem/yr
   (j)     (i)            t= 0.000E+00 1.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 6.000E+02 7.500E+02
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1.000E+03 2.300E+03
 ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    1.056E-06 1.039E-06 8.982E-07 6.499E-07 2.113E-07 9.273E-09 1.721E-10 1.446E-12
5.022E-16 0.000E+00
 Ac-227  Pa-231  1.000E+00    1.695E-08 5.083E-08 3.565E-07 1.066E-06 4.963E-06 1.317E-04 3.418E-02 3.395E-02
3.357E-02 3.189E-02
 Ac-227  U-235   1.000E+00    1.200E-13 8.437E-13 4.183E-11 3.988E-10 7.705E-09 7.506E-07 4.121E-04 5.174E-04
6.899E-04 1.540E-03
 Ac-227  äDOSE(j)             1.073E-06 1.090E-06 1.255E-06 1.716E-06 5.182E-06 1.325E-04 3.459E-02 3.447E-02
3.426E-02 3.343E-02
0Pa-231  Pa-231  1.000E+00    6.274E-08 6.384E-08 7.463E-08 1.056E-07 3.558E-07 1.145E-05 7.688E-03 7.636E-03
7.551E-03 7.148E-03
 Pa-231  U-235   1.000E+00    6.656E-13 2.028E-12 1.658E-11 6.815E-11 7.568E-10 7.284E-08 9.782E-05 1.215E-04
1.602E-04 3.499E-04
 Pa-231  äDOSE(j)             6.274E-08 6.384E-08 7.464E-08 1.057E-07 3.566E-07 1.152E-05 7.785E-03 7.758E-03
7.711E-03 7.498E-03
0Pb-210  Pb-210  1.000E+00    4.115E-10 4.058E-10 3.580E-10 2.717E-10 1.066E-10 8.959E-12 2.393E-11 2.221E-13
9.101E-17 0.000E+00
 Pb-210  Ra-226  1.000E+00    6.447E-12 1.937E-11 1.379E-10 4.270E-10 2.263E-09 9.354E-08 2.542E-03 2.380E-03
2.132E-03 1.203E-03
 Pb-210  Th-230  1.000E+00    9.348E-16 6.581E-15 3.313E-13 3.271E-12 7.256E-11 1.151E-08 7.068E-04 8.643E-04
1.103E-03 1.977E-03
 Pb-210  U-234   1.000E+00    2.109E-21 3.188E-20 1.074E-17 3.219E-16 2.641E-14 1.433E-11 1.878E-06 2.924E-06
5.101E-06 2.292E-05
 Pb-210  U-238   9.999E-01    1.198E-27 3.748E-26 8.138E-23 7.270E-21 2.110E-18 3.757E-15 1.033E-09 2.037E-09
4.818E-09 5.242E-08
 Pb-210  äDOSE(j)             4.180E-10 4.252E-10 4.962E-10 7.020E-10 2.442E-09 1.051E-07 3.251E-03 3.247E-03
3.240E-03 3.203E-03
0Ra-226  Ra-226  1.000E+00    1.272E-04 1.286E-04 1.418E-04 1.761E-04 3.764E-04 3.329E-03 9.737E-02 9.115E-02
8.165E-02 4.558E-02
 Ra-226  Th-230  1.000E+00    2.760E-08 8.363E-08 6.463E-07 2.342E-06 1.674E-05 4.620E-04 2.881E-02 3.484E-02
4.399E-02 7.657E-02
 Ra-226  U-234   1.000E+00    8.291E-14 5.859E-13 3.059E-11 3.221E-10 7.619E-09 6.365E-07 8.077E-05 1.231E-04
2.103E-04 9.015E-04
 Ra-226  U-238   9.999E-01    5.879E-20 8.903E-19 3.041E-16 9.294E-15 7.259E-13 1.825E-10 4.669E-08 8.937E-08
2.049E-07 2.092E-06
 Ra-226  äDOSE(j)             1.272E-04 1.287E-04 1.424E-04 1.784E-04 3.931E-04 3.792E-03 1.263E-01 1.261E-01
1.258E-01 1.231E-01
0Ra-228  Ra-228  1.000E+00    3.526E-05 3.165E-05 1.196E-05 1.377E-06 7.119E-10 2.901E-19 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Ra-228  Th-232  1.000E+00    2.173E-06 6.255E-06 3.043E-05 5.300E-05 1.299E-04 1.563E-03 6.774E-02 6.763E-02
6.744E-02 6.623E-02
 Ra-228  äDOSE(j)             3.744E-05 3.791E-05 4.240E-05 5.437E-05 1.299E-04 1.563E-03 6.774E-02 6.763E-02
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6.744E-02 6.623E-02
0Th-228  Ra-228  1.000E+00    4.895E-05 1.201E-04 1.353E-04 1.594E-05 6.725E-09 1.548E-18 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Th-228  Th-228  1.000E+00    2.651E-04 1.863E-04 7.782E-06 6.709E-09 1.263E-19 0.000E+00 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Th-228  Th-232  1.000E+00    2.048E-06 1.267E-05 2.045E-04 4.044E-04 8.186E-04 5.564E-03 1.152E-01 1.150E-01
1.147E-01 1.097E-01
 Th-228  äDOSE(j)            3.161E-04 3.191E-04 3.476E-04 4.204E-04 8.186E-04 5.564E-03 1.152E-01 1.150E-01
1.147E-01 1.097E-01
0Th-230  Th-230  1.000E+00    6.231E-13 6.408E-13 8.247E-13 1.445E-12 1.028E-11 2.796E-09 5.257E-04 5.242E-04
5.215E-04 5.082E-04
 Th-230  U-234   1.000E+00    2.818E-18 8.666E-18 7.795E-17 3.965E-16 9.287E-15 7.537E-12 2.823E-06 3.511E-06
4.644E-06 1.025E-05
 Th-230  U-238   9.999E-01    2.669E-24 1.913E-23 1.161E-21 1.714E-20 1.323E-18 3.208E-15 2.398E-09 3.727E-09
6.567E-09 3.321E-08
 Th-230  äDOSE(j)            6.231E-13 6.408E-13 8.247E-13 1.445E-12 1.029E-11 2.803E-09 5.286E-04 5.277E-04
5.262E-04 5.185E-04
0Th-232  Th-232  1.000E+00    3.838E-14 3.960E-14 5.243E-14 9.784E-14 8.683E-13 4.443E-10 2.584E-03 2.580E-03
2.573E-03 2.536E-03
0U-234   U-234   1.000E+00    9.242E-14 9.514E-14 1.236E-13 2.210E-13 1.689E-12 5.644E-10 2.351E-04 2.336E-04
2.311E-04 2.186E-04
 U-234   U-238   9.999E-01    1.316E-19 4.052E-19 3.679E-18 1.911E-17 4.813E-16 4.810E-13 4.006E-07 4.975E-07
6.564E-07 1.430E-06
 U-234   äDOSE(j)            9.242E-14 9.514E-14 1.236E-13 2.210E-13 1.690E-12 5.649E-10 2.355E-04 2.341E-04
2.318E-04 2.200E-04
0U-235   U-235   1.000E+00    3.294E-08 3.363E-08 4.050E-08 6.123E-08 2.601E-07 1.625E-05 8.668E-03 8.616E-03
8.531E-03 8.187E-03
0U-238   U-238   5.400E-05    4.271E-28 4.555E-28 8.137E-28 2.954E-27 2.691E-25 1.069E-19 1.126E-08 1.119E-08
1.108E-08 1.052E-08
 U-238   U-238   9.999E-01    4.277E-07 4.335E-07 4.893E-07 6.403E-07 1.642E-06 2.425E-05 1.890E-03 1.878E-03
1.860E-03 1.772E-03
 U-238   äDOSE(j)            4.277E-07 4.335E-07 4.893E-07 6.403E-07 1.642E-06 2.425E-05 1.890E-03 1.878E-03
1.860E-03 1.772E-03
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 THF(i) is the thread fraction of the parent nuclide.
1RESRAD, Version 6.5      T« Limit = 180 days        05/05/2011  11:32  Page  27
 Summary : TTLF Recreational Adult 2
 File    : C:\RESRAD_FAMILY\RESRAD\6.5\USERFILES\RECADULTCOV.RAD

                                          Individual Nuclide Soil Concentration
                                       Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                                S(j,t), pCi/g
   (j)     (i)             t= 0.000E+00 1.000E+00 1.000E+01 3.000E+01 1.000E+02 3.000E+02 6.000E+02 7.500E+02
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1.000E+03 2.300E+03
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ÄÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄÄ
 Ac-227  Ac-227  1.000E+00    1.000E+00 9.686E-01 7.272E-01 3.845E-01 4.133E-02 7.059E-05 4.984E-09 4.187E-11
1.454E-14 1.492E-32
 Ac-227  Pa-231  1.000E+00    0.000E+00 3.133E-02 2.726E-01 6.145E-01 9.547E-01 9.871E-01 9.740E-01 9.674E-01
9.567E-01 9.024E-01
 Ac-227  U-235   1.000E+00    0.000E+00 3.332E-07 3.036E-05 2.256E-04 1.473E-03 5.613E-03 1.173E-02 1.473E-02
1.965E-02 4.356E-02
 Ac-227  äS(j):               1.000E+00 1.000E+00 9.997E-01 9.992E-01 9.975E-01 9.928E-01 9.857E-01 9.822E-01
9.763E-01 9.460E-01
0Pa-231  Pa-231  1.000E+00    1.000E+00 1.000E+00 9.996E-01 9.987E-01 9.955E-01 9.866E-01 9.734E-01 9.669E-01
9.561E-01 9.019E-01
 Pa-231  U-235   1.000E+00    0.000E+00 2.116E-05 2.115E-04 6.339E-04 2.107E-03 6.267E-03 1.238E-02 1.537E-02
2.028E-02 4.414E-02
 Pa-231  äS(j):               1.000E+00 1.000E+00 9.998E-01 9.993E-01 9.976E-01 9.929E-01 9.858E-01 9.823E-01
9.764E-01 9.461E-01
0Pb-210  Pb-210  1.000E+00    1.000E+00 9.693E-01 7.320E-01 3.922E-01 4.416E-02 8.612E-05 7.417E-09 6.883E-11
2.821E-14 6.851E-32
 Pb-210  Ra-226  1.000E+00    0.000E+00 3.060E-02 2.664E-01 6.009E-01 9.224E-01 8.854E-01 7.759E-01 7.264E-01
6.506E-01 3.671E-01
 Pb-210  Th-230  1.000E+00    0.000E+00 6.662E-06 6.074E-04 4.518E-03 2.939E-02 1.087E-01 2.155E-01 2.636E-01
3.366E-01 6.030E-01
 Pb-210  U-234   1.000E+00    0.000E+00 2.004E-11 1.870E-08 4.367E-07 1.064E-05 1.351E-04 5.720E-04 8.912E-04
1.555E-03 6.989E-03
 Pb-210  U-238   9.999E-01    0.000E+00 1.423E-17 1.345E-13 9.692E-12 8.454E-10 3.536E-08 3.143E-07 6.204E-07
1.468E-06 1.598E-05
 Pb-210  äS(j):               1.000E+00 9.999E-01 9.990E-01 9.977E-01 9.959E-01 9.943E-01 9.920E-01 9.908E-01
9.888E-01 9.771E-01
0Ra-226  Ra-226  1.000E+00    1.000E+00 9.996E-01 9.956E-01 9.869E-01 9.569E-01 8.763E-01 7.679E-01 7.188E-01
6.439E-01 3.633E-01
 Ra-226  Th-230  1.000E+00    0.000E+00 4.331E-04 4.322E-03 1.291E-02 4.234E-02 1.214E-01 2.270E-01 2.745E-01
3.467E-01 6.100E-01
 Ra-226  U-234   1.000E+00    0.000E+00 1.950E-09 1.947E-07 1.746E-06 1.918E-05 1.669E-04 6.358E-04 9.697E-04
1.656E-03 7.180E-03
 Ra-226  U-238   9.999E-01    0.000E+00 1.842E-15 1.840E-12 4.955E-11 1.818E-09 4.778E-08 3.672E-07 7.032E-07
1.613E-06 1.666E-05
 Ra-226  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.998E-01 9.993E-01 9.978E-01 9.955E-01 9.943E-01
9.922E-01 9.804E-01
0Ra-228  Ra-228  1.000E+00    1.000E+00 8.864E-01 2.995E-01 2.687E-02 5.813E-06 1.964E-16 3.858E-32 5.407E-40
0.000E+00 0.000E+00
 Ra-228  Th-232  1.000E+00    0.000E+00 1.136E-01 7.004E-01 9.728E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
9.890E-01 9.749E-01
 Ra-228  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
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9.890E-01 9.749E-01
0Th-228  Ra-228  1.000E+00    0.000E+00 2.853E-01 4.089E-01 4.024E-02 8.711E-06 2.943E-16 5.781E-32 8.102E-40
0.000E+00 0.000E+00
 Th-228  Th-228  1.000E+00    1.000E+00 6.961E-01 2.670E-02 1.902E-05 1.838E-16 0.000E+00 0.000E+00 0.000E+00
0.000E+00 0.000E+00
 Th-228  Th-232  1.000E+00    0.000E+00 1.864E-02 5.643E-01 9.594E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
9.890E-01 9.749E-01
 Th-228  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.934E-01 9.918E-01
9.890E-01 9.749E-01
0Th-230  Th-230  1.000E+00    1.000E+00 1.000E+00 9.998E-01 9.994E-01 9.980E-01 9.940E-01 9.880E-01 9.851E-01
9.802E-01 9.549E-01
 Th-230  U-234   1.000E+00    0.000E+00 9.002E-06 8.999E-05 2.698E-04 8.974E-04 2.675E-03 5.300E-03 6.594E-03
8.723E-03 1.926E-02
 Th-230  U-238   9.999E-01    0.000E+00 1.276E-11 1.275E-09 1.147E-08 1.272E-07 1.137E-06 4.500E-06 6.995E-06
1.233E-05 6.238E-05
 Th-230  äS(j):               1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.933E-01 9.917E-01
9.889E-01 9.743E-01
0Th-232  Th-232  1.000E+00    1.000E+00 1.000E+00 9.999E-01 9.997E-01 9.989E-01 9.967E-01 9.934E-01 9.917E-01
9.890E-01 9.749E-01
0U-234   U-234   1.000E+00    1.000E+00 1.000E+00 9.996E-01 9.987E-01 9.957E-01 9.872E-01 9.746E-01 9.684E-01
9.580E-01 9.061E-01
 U-234   U-238   9.999E-01    0.000E+00 2.835E-06 2.834E-05 8.494E-05 2.823E-04 8.399E-04 1.659E-03 2.061E-03
2.720E-03 5.927E-03
 U-234   äS(j):               1.000E+00 1.000E+00 9.996E-01 9.988E-01 9.960E-01 9.881E-01 9.763E-01 9.704E-01
9.608E-01 9.120E-01
0U-235   U-235   1.000E+00    1.000E+00 1.000E+00 9.996E-01 9.988E-01 9.960E-01 9.881E-01 9.763E-01 9.704E-01
9.608E-01 9.120E-01
0U-238   U-238   5.400E-05    5.400E-05 5.400E-05 5.398E-05 5.394E-05 5.378E-05 5.336E-05 5.272E-05 5.240E-05
5.188E-05 4.925E-05
 U-238   U-238   9.999E-01    9.999E-01 9.999E-01 9.995E-01 9.987E-01 9.960E-01 9.880E-01 9.762E-01 9.704E-01
9.607E-01 9.120E-01
 U-238   äS(j):               1.000E+00 1.000E+00 9.996E-01 9.988E-01 9.960E-01 9.881E-01 9.763E-01 9.704E-01
9.608E-01 9.120E-01
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ÍÍÍÍÍÍÍÍÍÍ ÍÍÍÍÍÍÍÍÍÍ
 THF(i) is the thread fraction of the parent nuclide.
0RESCALC.EXE execution time =   13.77 seconds
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