FINAL REPORT

Results of Site Investigation and Drum Removal Vicinity Property G

Niagara Falls Storage Site

Lewiston, New York

Submitted to SAIC under
subcontract agreement 4400155143
Contract DACW-62-03-D-0003
Issued by the Nashville District USACE

Work performed for the
Buffalo District USACE

JANUARY 2009

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LIST OF ACRONYMS

4,4'-DDD	benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-
4,4'-DDE	benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-
4,4'-DDT	benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro
AC	Animal carcass
Ac-227	actinium-227
ACG	Sample prefix, Animal Carcass in Vicinity Property G
Am-241	americium-241
bgl	below ground level
BHC	a-hexachlorocychlohexane
CLP	Contract Laboratory Program
Co-60	cobalt-60
CPM	Counts per minute
Cs-137	cesium-137
EM	Electromagnetic
EM-31	Electromagnetic survey instrument model number
ERDA	Energy Research and Development Administration
Fe	iron
FSP	Field Sampling Plan
Ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
g	gram
GEL	General Engineering Laboratories
GSA	General Services Administrations
HP	Health Physics
IDW	Investigation Derived Waste
LD	Laboratory Debris
LOOW	Lake Ontario Ordnance Works
MED	Manhattan Engineer District
mR/h	milliRoentgens per hour

LIST OF ACRONYMS (Continued)

NaI	sodium iodide
NFSS	Niagara Falls Storage Site
NYSDEC	New York State Department of Environmental Conservation
Pa-231	Protactinium-231
PAHs	Polynuclear Aromatic Hydrocarbons
PAPRs	Powered Air Purifying Respirators
PCB	Polychlorinated Biphenyls
pCi/g	picoCuries per gram
PID	photoionization detector
Po-210	polonium-210
PPE	personal protective equipment
Pu-239	plutonium-239
Pu-239/Pu-240	plutonium-239/plutonium-240
PuO_2	plutonium dioxide
QC	Quality Control
Ra-226	radium-226
Ra-228	radium-228
Rn-222	radon-222
SAIC	Science Applications International Corporation
SOW	Scope of Work
Sr-90	strontium-90
SRC	Site Related Compound
SVOCs	Semi-volatile organic compounds
TAL	Target Analyte List
TBG	Sample Prefix subsurface soil sample from a trench in Vicinity Property G
TCLP	Toxic Characteristic Leaching Procedure
TCLP-Herbicides	Toxic Characteristic Leaching Procedure for Herbicides
TCLP-Metals	Toxic Characteristic Leaching Procedure for Metals
TCLP-Pesticides	Toxic Characteristic Leaching Procedure for Pesticides
TCLP-SVOC	Toxic Characteristic Leaching Procedure for semi-volatile organics
TCLP-VOA	Toxic Characteristic Leaching Procedure for volatile organics
TG	Trench designation in Vicinity Property G
Th-228	thorium-228
Th-230	thorium-230
Th-232	thorium-232
Th-234	thorium-234
Tl	thallium

LIST OF ACRONYMS (Continued)

TNT	trinitrotoluene
TSG	Designation of surface soil sample collected from trench in Vicinity Property G
TX	Texas
U of R	University of Rochester
U-234	uranium-234
U-235	uranium-235
U-238	uranium-238
µCi	microCurie
USACE	United States Army Corps of Engineers
USAEC	United States Atomic Energy Commission
USDOE	United States Department of Energy
V	Vanadium
VOC	Volatile Organic Compound
VPG	Vicinity Property G

EXECUTIVE SUMMARY

This report presents results of trenching and sampling activities conducted at the Vicinity Property G (VPG), a 29.7 acre parcel located immediately north of and adjacent to the Niagara Falls Storage Site (NFSS), Lewiston NY. VPG is currently owned by CWM Chemical Services LLC (CWM). CWM operates a hazardous waste disposal facility on portions of the VPG and adjacent property. A part of the VPG is currently a wastewater treatment pond. The site investigations at VPG were performed in order to evaluate potential presence of radiological wastes remaining on the property due to past government activities. Beginning in 1944, the NFSS and Vicinity Properties were used by the USACE-Manhattan Engineer District (MED) and subsequent federal agencies for the management of radioactive residues and wastes produced at other sites.

VPG was once part of the Lake Ontario Ordnance Works (LOOW), a TNT manufacturing facility. From 1944 – 1948, the NFSS was used by the USACE–MED for management of radioactive residues. NFSS Vicinity Properties are designated properties that have been radiologically impacted by past government activities and were investigated and remediated by the US Department of Energy and certified clean by an independent party. A cleanup of the Vicinity Properties was performed by Hooker Chemical, and the Vicinity Properties were excessed in 1955.

Three Vicinity Properties, including VPG, were not closed by the US Department of Energy. Cleanups of VPG were performed in the 1950s, the 1970s and 1980s. As a result of cleanups, soils were excavated and some were removed.

A small, 21 x 21 foot (approximately 6.4 x 6.4 meters) area, referred to as the University of Rochester (U of R) Burial Area, was located within VPG. Records indicate experimentation with laboratory animals and radioactive chemicals may have resulted in disposal of wastes in the Rochester Burial Area in the 1950s. Records related to the presence, location, contents, and extent of remediation of the U of R Burial Area are inconclusive.

Based on historical records, aerial photos, visual observations, and results of electromagnetic survey and gamma screening, six trenches were excavated on VPG in 2002. Trenching was used to investigate the site because it was considered to be a more effective tool than conventional investigation techniques. The trenches were positioned to intercept potential remnants of the Rochester Burial Area. The length of the trenches varied from six to 100 feet (1.8 to 30.5 meters), and their depths ranged from two to 12 feet (0.6 to 3.7 meters).

Samples collected from VPG trenches were analyzed and radiological constituents were found at levels above the background levels defined during the Remedial Investigation of the NFSS. Additionally, chemical constituents, analyzed to characterize soils for disposal purposes, were found above background levels also defined during the RI on the NFSS. Chemical and radiological parameters determined to be site-related compounds (SRCs, chemicals found above the background screening value, as defined in Section 5) include metals, volatile and semivolatile organics, PCBs, pesticides, and a range of radionuclides.

Sampling results confirmed presence of two isolated small chips of radioactive materials with radiological characteristics similar to K-65 residues managed at the NFSS, in one of the six trenches. These chips (each approximately the size of a pencil eraser) contained radium-226, thorium-230, uranium-234, uranium-235, uranium-238, and alpha and beta radiation, at levels several orders of magnitude higher than background. The chips were consumed in laboratory analyses.

Trenching and sampling also confirmed presence of laboratory debris, one animal bone, building debris, and chemical and radiological SRCs, including plutonium-239/240 and strontium-90. These latter radionuclides are not typical of those be associated with MED activities at the NFSS and are believed to be remnants of waste disposal at the Rochester Burial Area. The single bone found was consumed in laboratory analysis, and the lab debris found was consumed in analysis and/or containerized for disposal as investigation-derived waste (IDW).

Remnants of nine abandoned drums present on VPG property were containerized and their contents characterized through laboratory analysis. Disposal of these drummed materials will be performed under Task 3 of SAIC's contract with the Buffalo District USACE. Investigation derived wastes were also drummed and characterized, and are scheduled for disposal.

The investigation performed at VPG confirmed the presence of chemical and radiological SRCs in surface and subsurface soils. These SRCs are evidence of materials that remain on this parcel, after three cleanups of the property. The presence of SRCs in subsurface soils at VPG is consistent with the historical use of the property as a burial area. The horizontal and vertical extent of additional laboratory debris, K-65 residues, and other chemical and radiological SRCs is unknown. Further investigation is planned (See Recommendations, Section 8).

FUSRAP Fact Sheet (Niagara Falls Storage Site—Vicinity Property G)

The United States Corps of Engineers, Buffalo District, prepared a FUSRAP Fact Sheet concerning the Former University of Rochester Burial Area Investigation. It is included on the following pages.

US Army Corps of Engineers®

FUSRAP Fact Sheet

Niagara Falls Storage Site (NFSS)

Former University of Rochester Burial Area Investigation

Vicinity Property G (VPG)

U.S. Army Corps of Engineers • Buffalo District • June 2004

History of "Rochester Burial Area"

During the Manhattan Engineer District Project in the 1940s, the University of Rochester was assigned the task of performing research in support of radiation safety (Aerospace Corporation, 1982)[1]. Some of this research involved testing of radiation effects on animals. In 1951, the University of Rochester (U of R) established the burial site on what is now Vicinity Property G (VPG) of the NFSS for the burial of test animal carcasses and other contaminated debris from their research laboratory.

In 1972, the Department of Energy (DOE) excavated the U of R Burial Area to a depth of 10 feet and removed 512 cubic yards of soil, drums and debris. The DOE placed the material "onsite" on the spoils pile (Aerospace Corporation, 1982)[1]. It is unknown whether or not this excavated material was originally placed on the NFSS or if it eventually was placed into the interim waste containment structure at the NFSS.

The Corps' NFSS investigative team continues to research historic reports and files to determine where the "onsite" location is and where the material excavated was ultimately disposed.

Background

Since 1999, the U.S. Army Corps of Engineers has been conducting a Remedial Investigation (RI) of the Niagara Falls Storage Site (NFSS) to verify the presence and location of existing contamination. The Corps' RI work focuses on areas on the NFSS not addressed by the Department of Energy (DOE) during previous clean up activities at the site. Areas not thoroughly addressed in the vicinity outside of NFSS are Vicinity Property G (VPG), VPE and VPE'. Characterization of these three properties, located to the north of NFSS on the former Lake Ontario Ordnance Works (LOOW), was performed, but not completed, by the United States Department of Energy (DOE) since small portions of interest on each property were not accessible. Accordingly, these properties remain as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP).

Response to Community

Based upon historical records and local community concern, the Lake Ontario Ordnance Works Restoration Advisory Board (LOOW RAB) requested that the Corps perform an investigation to confirm the presence or absence of animal carcasses associated with the University of Rochester (U of R) Burial area.

Legend:

- Vicinity Properties previously certified as closed (i.e. remediated) by DOE.
- Investigations at Vicinity Properties G, E` and E were not completed by DOE and will be investigated as FUSRAP sites by the Corps of Engineers.
- The Niagara Falls Storage Site (NFSS); currently undergoing a Remedial Investigation/Feasibility Study conducted by the Corps of Engineers.

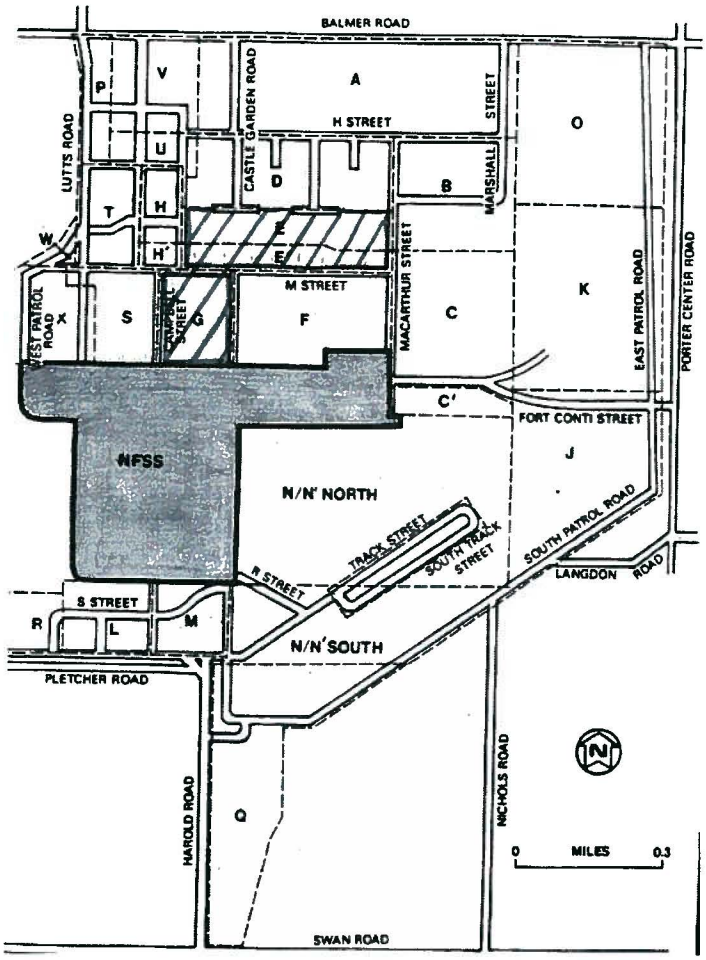


Figure 1: Letter-Designated Vicinity Properties (Bechtel, 1989)[2]

Site Description

Vicinity Property G (see fig. 1) is almost 30 acres in size and privately owned. It is located north of the NFSS in the Lewiston and Porter Townships, New York. An old farmhouse that predates government activities (see figure 2 reference to 'red roof house') is located on the site, as well as an active liquid waste treatment pond. A chain link fence restricts access to the site by the general public.

The VPG property, currently owned by CWM Chemical Services, is one of three open (or incompletely investigated) vicinity properties associated with the Niagara Falls Storage Site.

Site Location

The location of the U of R burial area is marked on Figure 2, the 1957 Hooker Electrochemical Company Chart A-D353, Rev 2 (Aerospace Corporation, 1982)[1]. The map showed the U of R burial area as an approximately 21-foot (6.5 meter) by 21-foot (6.5 meter) area located 88 feet (27 meters) east of the Red Roof House and about 37 feet (11 meters) south of the trail in the central to southeastern portion of VPG.

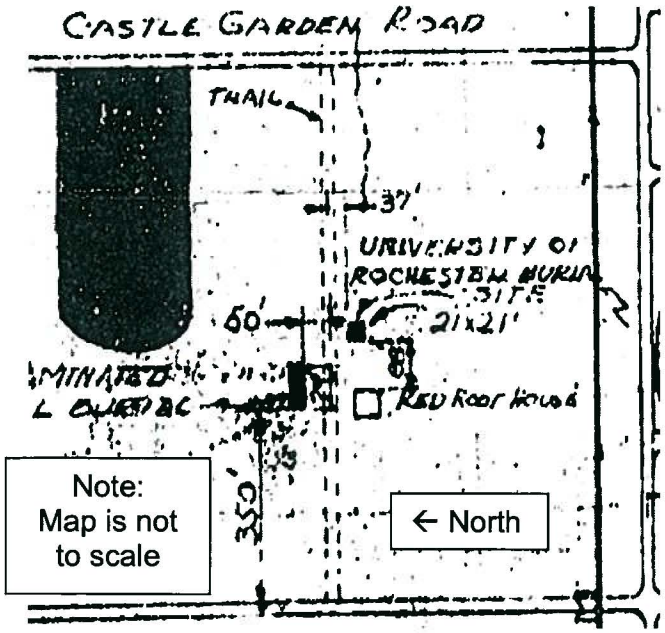


Figure 2: 1957 Map of U of R burial area (Aerospace Corporation,1982)[1]

Geophysical Investigation

In November 2001, the Corps' investigative team conducted a focused frequency domain electromagnetic (EM-31) survey over the entire southern portion of Vicinity Property G south of the gravel road (see Figure 7) to locate the former U of R Burial Area.

Figure 3: EM-31 Survey of VPG (Red Roof House in background)

Using the EM-31 survey approach, the Corps' investigative team looked specifically for buried metal or changes in soil properties— signs that may indicate a burial area (Figure 3).

The Corps' team identified one near-surface area of interest (where electrical conductivity readings were higher than background) within the vicinity of the former U of R burial area, indicating possible buried metallic debris.

The Corps targeted this area for trenching activities. The excavation of soil was selected to investigate the suspect burial area since it allowed for better physical identification and investigation of a larger amount of soils than standard drilling techniques.

Trenching Objectives

The Corps conducted soil excavation activities on VPG to:

1. Confirm the presence or absence of debris associated with the former U of R Burial Area based upon historical information, visual evidence, and geophysical results.
2. Collect samples to characterize debris and soils surrounding debris for future characterization efforts.

No formal surface gamma radiation walkover was conducted since deeper gamma readings were needed to investigate subsurface features. However, the Corps' team scanned each bucket of excavated soil for volatile organic compounds and gamma radiation using real-time reading instrumentation in the field. The Corps team also used test kits to inspect the excavated soil for evidence of nitroaromatic compounds. A magnetometer (iron-seeking metal detector) survey of the trench bottom was conducted after each foot of soil was excavated.

Figure 4: Trench on VPG. This picture shows the start of the 65 foot-long, 12-foot deep trench began on May 22, 2002.

May 22, 2002 Trenching Activities

On 22 May 2002, excavation of a 65-foot long and 12-foot deep maximum trench was started to:

- Confirm the 1972 excavation of the former Rochester Burial Area,
- Evaluate the suspected buried area (identified in the geophysical survey),
- Measure gamma radiation levels, and
- Collect samples to support future investigations.

Figure 5: Unearthed Metal Trashcan

The location of the burial area was taken from the 1957 hand-drawn map (Figure 2). Trench TBG01 is located 88 feet from the red roofed farmhouse mentioned earlier, which was aligned with the centerline of the disposal area. The length of the trench accounted for the fact that the trail is no longer straight (as shown in Figure 7).

A small pit near TBG01, designated as TBG02, was investigated due to a gamma reading greater than background. A rusted, corrugated metal trashcan containing laboratory debris was unearthed between 6 inches and 3.5 feet below ground surface in TBG02. The container contents included standard laboratory debris, such as tubing, syringes, syringe needles, microscope slides, petri dishes, glass reagent bottles, pipettes, emesis basin, test tubes, and laboratory gloves.

Figure 6: Unearthed Glass Bottle

Average background gamma radiation levels in non-impacted subsurface soils (using a 2" x 2" sodium iodide (NaI) gamma radiation detector) were normally around 15,000 counts per minute (CPM). The corrugated metal container and contents exhibited gamma radiation levels up to 290,000 CPM, or approximately 20 times greater than background radiation levels to a depth of 3.5 feet, after which background radiation levels were encountered.

Due to the level of gamma radiation measured in this trench, the discovery of microscope slides (indicative of biological testing like the University of Rochester would have conducted), and the age of the glass reagent bottles (mid 1940s), the laboratory debris fit the profile of University of Rochester laboratory debris. However, burial is likely to have taken place between 1944 and 1953.

The Corps suspended trenching activities in May 2002 due to the discovery of laboratory debris. A more thorough trenching investigation was scoped and the Corps' Contractor's Site Safety and Health Plan was revised to include protocol for alerting the laboratory personnel receiving the samples that there may be sharps (such as glass), minimizing the number of personnel in the exclusion zone while trenching, perimeter air monitoring during trenching activities, and increasing the level of respiratory protection in the exclusion zone.

September 11-16, 2002 Trenching Activities

The Corps continued trenching TBG01 on September 11-16, 2002. Four additional trenches (for a total of 6 trenches) were investigated (see Figure 7). The trench locations were based upon previous geophysical evidence, and visual depressions. Upon further trenching of TBG01, one pelvic bone from a small mammal (ACG01) was found one foot below ground surface with slightly above background surface gamma radiation levels. Also, a few items of laboratory debris were unearthed (LDG01, LDG02, LDG04). A soil sample containing a dime-size portion exhibiting an elevated gamma radiation reading (greater than 1,000,000 CPM) was collected within a foot of the surface in TBG03. The radioactive material associated with this sample, initially non-detectable at the surface, was later determined to be principally radium-226, with lesser amounts of thorium-230, strontium-90, actinium-227, uranium 233/234, uranium 235/236, and uranium-238.

Once this soil sample was collected (i.e. removed from the site), gamma readings below this sampled area were typical of background. No evidence of animal bones or lab debris was found in TBG03, TBG05, and TBG06.

The November 2001 electromagnetic (EM-31) geophysical survey was conducted over more than 8 acres of the southern portion of VPG (see Figure 7 for EM-31 survey tracks). A total of 45 soil samples, five laboratory debris samples, and the animal bone were collected from the six trench locations (Figure 7) and analyzed for various metals, radionuclides, pesticides, polychlorinated biphenyls (PCBs), semi volatiles, and volatile organics. The selection of sampled parameters for each sample was based upon historic review, measured gamma radiation (using a 2" x 2" NaI detector) and volatile organics (using a Photoionizing Detector). Deteriorated trash cans, miscellaneous lab debris, and other material generated from this investigation were contained in drums. These drums are temporarily stored on the NFSS with other remedial investigation–derived waste pending acceptance of ultimate bulk disposal at Waste Control Specialists (Andrews, TX).

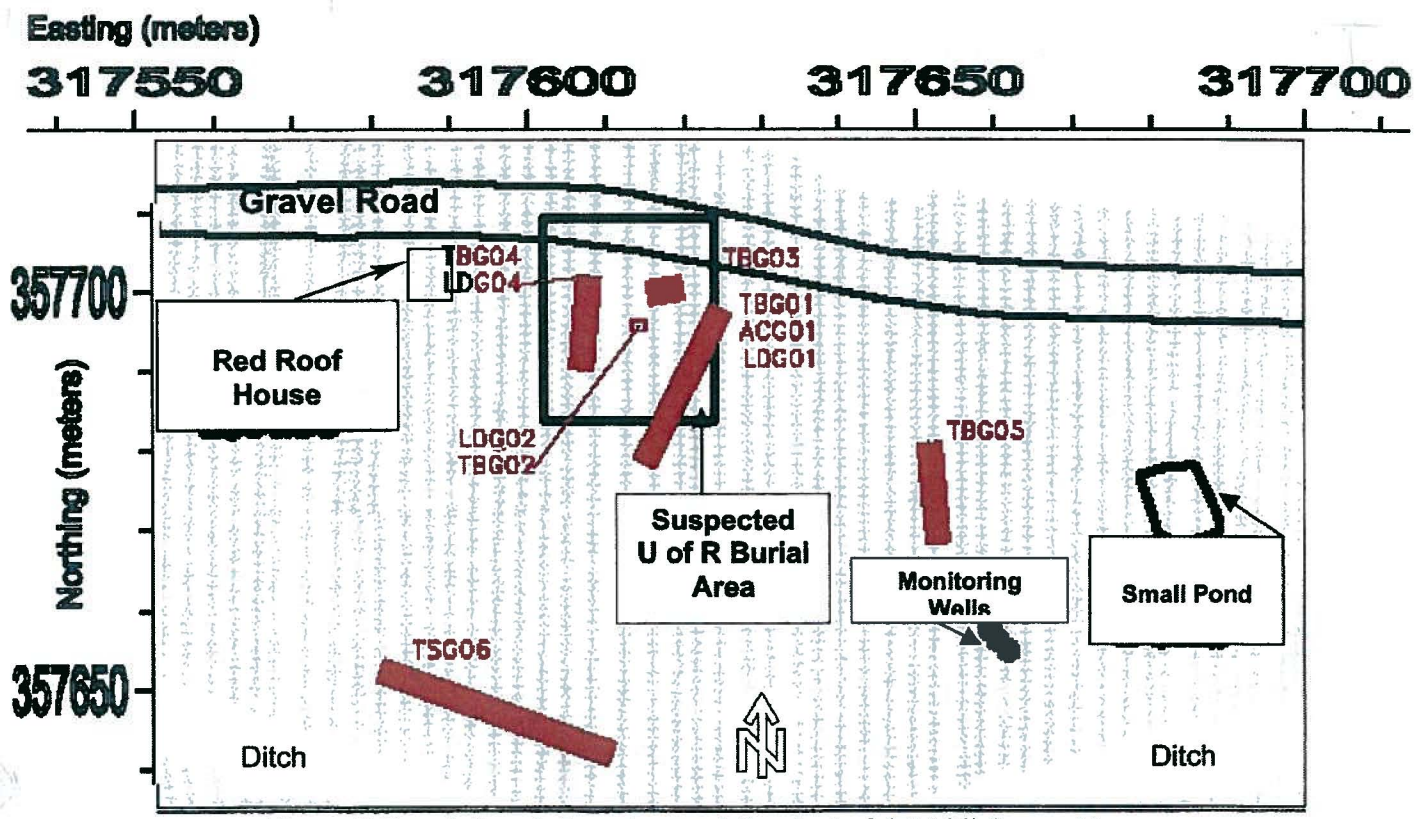


Figure 7: Trench Sample Locations and Geophysical (EM-31) Survey Lines

Findings

- Detectable concentrations of plutonium-239/240 (Pu-239/240) and strontium-90 (Sr-90) were identified during the May and September 2002 sampling efforts. A total of eight Pu-239/240 detects were reported in the small animal bone (1), laboratory debris (2), and subsurface soils in TBG01 and TBG02 (5) with concentrations ranging from 0.409 to 17.6 pCi/g. Twelve Sr-90 detects were reported in the small animal bone (1), laboratory debris (3), and subsurface soils in TBG01, TBG02, and TBG03 (8) with concentrations ranging from 0.576 to 306 pCi/g. Two Sr-90 detects were co-located with Pu-239/240 detects and one was co-located with the dime-size sample exhibiting elevated gamma radiation in the field. These contaminants are not linked with historical activities at NFSS but are only linked to activities by the University of Rochester (U of R). There is no documentation available indicating that radiological wastes containing Pu-239/240 and/or Sr-90 were buried on VPG.

- One pelvic bone from a small mammal (ACG01), unearthed from the former U of R Burial Area, exhibited elevated Sr-90 (306 pCi/g) with a lesser degree of Pu-239/240 (8.08 pCi/g). The small animal bone may be a remnant from the former disposal of animal carcasses associated with testing at the U of R. There is no documentation available indicating that radiological wastes containing Pu-239/240 and/or Sr-90 were buried on VPG.

- One subsurface soil sample collected (i.e. removed from the site) during the September 2002 trenching activities containing a dime-size portion with elevated gamma radiation >1,000,000 CPM (in TBG03) exhibited radium-226 concentrations similar to K-65 residues according to laboratory results. Since historical information links VPG to K-65-related activities, it is likely that VPG was contaminated with the same K-65 residue currently stored in the interim waste containment structure at NFSS.

Conclusions:

- The Corps confirmed the presence of a remnant animal bone and laboratory debris associated with the 1972 excavation of the U of R burial area. Therefore, the Corps concluded that VPG has isolated areas of buried radiologically contaminated materials through activities from two independent sources: Mallinckrodt K-65 and U of R animal testing, which was sent to the site as part of the Atomic Energy Commission operations. The available data and the historical information associated with these potential sources support the conclusion that the U of R is likely the source of the plutonium-239/240 and strontium-90 contamination and NFSS is the source of the radium-226 contamination.

- Based upon the findings of strontium-90 and plutonium-239/240 in debris and subsurface soils and K-65-like radium-226 concentrations in subsurface soils, further characterization of VPG is warranted. Note: A portion of VPG is inaccessible due to the presence of a water treatment pond (restricting full access to the site for characterization purposes).

- The findings of this investigation do not present any exposure or risk to the general population since the surface soil investigated exhibited near background radiation levels and VPG is inaccessible to the general public. In addition, no elevated gamma radiation, presence of lab debris, or animal bones was detected in 99% of the approximately 300 foot trenched area.

- The U.S. Army Corps of Engineers will request appropriations from Congress for funding to characterize all vicinity properties not certified closed by the DOE (VPG, VPE, and VPE'). Once funding is available, a thorough Remedial Investigation of the entirety of VPG, VPE, and VPE' will be conducted.

References:

[1]Aerospace Corporation, *Background and Resurvey Recommendations for the Atomic Energy Commission Portion of the Lake Ontario Ordnance* Works, November 1982. (Volume 5 in LOOW Administrative Record)

[2]Bechtel National, Inc., *Post-Remedial Action Report for the Niagara Falls Storage Site Vicinity Properties – 1985 and 1986*, January 1989. (NF-006 in NFSS Administrative Record)

1.0 INTRODUCTION

This report documents trenching and sampling activities conducted on a portion of VPG during May and September 2002. The VPG is one of the vicinity properties associated with the NFSS and is located north of the NFSS in Lewiston and Porter Townships, New York (Figure 1).The work described in this document was performed for the United States Army Corps of Engineers – Buffalo District (Buffalo District USACE), Formerly Utilized Sites Remedial Action Program (FUSRAP) under Contract DACW49-97-D-0001, Work Order No. 0012. This report is submitted in accordance with Task 1 of Tetra Tech's subcontract with Science Applications International Corporation (SAIC).

Maxim Technologies Inc., a subsidiary of Tetra Tech, Inc., conducted these investigations with the participation of subcontractors including SAIC, General Engineering Laboratories (GEL) and Tri-C, Inc. In 2005, Maxim's St. Louis office was assimilated into Tetra Tech.

1.1 Authority and Purpose of the Investigation

The VPG site is owned by CWM Chemical Services LLC. From 1944 through 1946, Manhattan Engineer District (MED) was responsible for management of activities at Vicinity Property G. Vicinity Properties are designated properties that have been radiologically impacted by past government activities. Most Vicinity Properties at NFSS were investigated and remediated by the US Department of Energy. Vicinity Property G was not fully cleaned up by USDOE. Subsequently, management responsibilities for the property were transferred to the Atomic Energy Commission (AEC), the Energy Research and Development Administration (ERDA), and then the Department of Energy. In 1997, Congress transferred certain aspects of authority over the FUSRAP program from the DOE to the USACE. USACE is responsible for conducting investigations and performing remedial actions at designated FUSRAP sites. The DOE has responsibility for identifying potential FUSRAP sites and performing long-term surveillance and monitoring at completed FUSRAP sites, as appropriate. Since VPG was not fully remediated by the DOE due to the presence of an active wastewater treatment pond, the Buffalo District USACE undertook this investigation.

The Site Investigation was conducted under CERCLA to confirm the presence or absence of suspected anomalies, investigate the anomalies, and determine the nature and extent of potential chemical and/or radiological contamination. The overall strategy for the VPG site is to remediate radiological contamination attributable to activities of the MED/AEC, if necessary. In addition, Buffalo District USACE has the authority to remediate Department of Defense chemical compounds in areas not specifically put to "beneficial use" by the site owner, under the Defense Environmental Restoration Program for Formerly Used Defense Sites.

2.0 BACKGROUND/SITE HISTORY

The VPG is located immediately north of and adjacent to the NFSS and is owned by CWM. The site is approximately 29.7 acres in size (USDOE 1984). The site is bounded by "M" Street on the north, Castle Garden Road on the east and Campbell Street on the west (Figure 2). The chain link fence north of "N" Street delineates the southern boundary of the VPG, adjacent to NFSS property. The VPG site is currently fenced and inaccessible to the general public.

The VPG parcel was once a part of the LOOW, a TNT production facility constructed during World War II. During the operational period of the LOOW, the TNT Manufacturing Area was located to the north of the VPG parcel, with the Acid Production Area bordering to the south (USACE 1998).

Beginning in 1944, the MED began using approximately 1500 acres of the LOOW for the shipment, storage and disposal of radioactive residues and contaminated materials resulting from the processing of ores by the MED. Subsequently, the United States Atomic Energy Commission (USAEC) assumed responsibility for processing nuclear materials (USDOE 1987b). The MED transferred control of the radioactive residues at the NFSS to the USAEC in 1947. Receipt of radioactive material was discontinued in 1954. The responsibility for the NFSS site has passed from the USAEC, to the Energy Research and Development Administration (ERDA), to the USDOE, to the USACE (USDOE 1983). Two years after USACE completes remediation, responsibility will revert to USDOE.

Following cleanup activities by Hooker Electrochemical Company, approximately 1298 acres of the original 1511-acre USAEC site were declared excess by the USAEC in 1955. By 1968, the General Services Administration (GSA) had disposed of those 1298 acres, leaving a 213-acre USAEC site (USDOE 1982). In 1975, the ERDA declared the site's 22-acre sewage treatment plant excess property and transferred this tract to the town of Lewiston, leaving the present 191-acre NFSS site. The excessed portions of the former 1511-acre USAEC site are known as the Vicinity Properties.

A liquid treatment pond operated by CWM is located in the northeastern portion of the VPG (Figure 2). Topography at the VPG is relatively flat, with a patchwork of open and forested areas. A manmade ditch, which drains to the west, bisects the VPG in the southern portion of the parcel. A red roof house, or old farmhouse, that predates the operational period of the LOOW is present near the documented location of the Rochester Burial Area.

The Rochester Burial Area was established in 1951 and was reportedly used for the interment of contaminated carcasses and waste from laboratory animals as well as miscellaneous contaminated materials including cesium gaps (electron tubes containing cesium-137).

Investigation of the VPG was initiated as part of the trenching activities described in the February 2002 SOW for *On-Site Trenching and Associated Sampling* issued by the Buffalo District USACE. Based on the findings of laboratory debris and radioactivity above background during the initial trenching activities at the VPG during May 2002, work was suspended until completion of the Technical Memorandum, *Recommendations for Completion of Trenching at the Animal Carcass Burial Area Vicinity Property G* (Maxim Technologies, Inc. 2002a), presented in Appendix A. Based on the recommendations referenced above and comments from the Buffalo District USACE, the SOW for trenching at the VPG was modified

to include additional trenching locations, upgrade of the level of personal protective equipment (PPE) to Level C with powered-air-purifying respirators (PAPRs), and collection of additional soil, laboratory debris and animal carcass samples. Work related to this SOW modification was performed in September 2002. This report addresses trenching, and sampling activities conducted during May and September 2002 and abandoned drum characterization initiated in July 2003.

2.1 Waste Disposal History

Several areas of the VPG were used for storage or burial of radioactive waste during the 1950s. These areas were known as the Castle Garden Dump, located in the northeastern section of the VPG, the Metal Burial Site, located in the south central portion of the VPG, and the Rochester Burial Area located in the south central portion of the VPG (Figure 2).

The Castle Garden Dump was reportedly used for the storage of contaminated and uncontaminated metal containers, equipment, building rubble, ashes, acid bricks, residue, process material, drums, electron tubes (gap switches) containing less than 5 µCi Cs-137, transite, insulation and miscellaneous items of equipment (USDOE 1982).

The Metal Burial Site was used for the burial of contaminated metal and was approximately 15 meters by 60 meters in size and approximately 2.5 meters deep.

There is conflicting information concerning the location of the burial area. In one reference, (Hooker Electrochemical Company 1957) the Rochester Burial Area was reported to be 88 feet east of a former red roof house and was approximately 6.5 by 6.5 meters (21 ft. x 21 ft.) in size. The location of the burial area is well marked Chart A-D-353 Rev. 2 (Figure 3) of the 1957 Hooker Electrochemical Company. In another reference, a memo from Hooker Electrochemical Company dated July 15, 1953 (Hooker Electrochemical Company 1953) indicates that the "Rochester Animal dumpings" were located in an area 200 feet east of the red roof house, west of Castle Garden Road.

Another portion of the VPG, northwest of the Metal Burial Area, contained contaminated metal, drums (some that had contained K-65 residue), boxes and uranium residues (USDOE 1982). The receipt of radioactive material at the VPG was discontinued in 1954 (USDOE 1984).

2.2 University of Rochester Research

The University of Rochester (U of R) conducted research with radioactive isotopes in support of radiation safety for the federal government from the 1940s until midway through the 1970s. Research in the 1940s included the use of rats and dogs and included direct radiation exposure experiments, and research using ingestion (radionuclides in food) and injection of radionuclides. Research conducted in the 1950s included studies with polonium-210 (Po-210) involving rats, mice and rabbits, and administration of thorium-232 (Th-232) and thorium-234 (Th-234) in a thorium sulfate carrier to a variety of rodents. Uranium dioxide dust inhalation experiments on rats, dogs and monkeys, experimentation on monkeys and rats using strontium-90 (Sr-90), and extensive animal testing with radon-222 (Rn-222) and inhalation studies of plutonium dioxide (PuO_2) in dogs were also performed (USDOE 1988b).

Based on the historical documentation, the following radionuclides may have been used at the U of R prior to 1955 and may have been deposited in the Rochester Burial Area at the VPG:

- Radium-226
- Uranium-233
- Uranium-234
- Uranium-235
- Uranium-238
- Plutonium-239
- Thorium-230
- Thorium-232
- Thorium-234
- Polonium-210
- Radon-222
- Cesium-137
- Strontium-90

NOTE: In addition to radionuclides listed above, daughter products such as protactinium-231, actinium-227, and radium-228 are likely to be present since their parent radionuclides are present.

NOTE: Thorium-234, polonium-210 and radon-222 are judged to be unlikely to be currently present of VPG due to their short half-lives.

2.3 Previous Studies/Remediation

Various studies and remedial activities have been performed at the Rochester Burial Area. Information from the historical record concerning previous studies and remedial actions is presented in the following paragraphs.

1949: Model 1 gaps (electron tubes containing strontium-90) and Model 3 cesium-137 gaps were sent to LOOW for storage or burial (USDOE 1982).

1954: As early as 1954, the burial area was surveyed and radiation levels were found to be at background except for some process material reading as high as 40 mrep/hr (approximately 37 mrad/hr). The unit rep is an acronym for Roentgen equivalent physical, which is no longer in use and has been replaced by the unit rad. One mrep is equal to 0.93 mrad. An internal Hooker Electrochemical Company memo, dated 7/15/55, states: "Rochester Burial Area: Cesium gap removed from area. Fresh soil was added to burial area to give greater coverage" (Hooker Electrochemical Company 1955).

1955: Other documented evidence on the location of gaps was found in the descriptions of the 1954/1955 decontamination of the Castle Garden Dump area. Some gaps were reported found in drums and others were found strewn about on the surface. A gap reading 11 mR/h on contact was removed from the Rochester Burial area (USDOE 1982).

1970: A survey planned by the Atomic Energy Commission found the levels of radiation of 30 mR/h (USDOE 1982).

1972: 512 cubic yards of material containing drums and debris were removed from a 10-foot deep excavation in the burial area and placed the material in the spoils pile onsite. A carboy was unearthed, leading authors of the report "Background and Resurvey Recommendations for the Atomic Energy Commission Portion of the Lake Ontario Ordnance Works", USDOE, 1982, to speculate that waste from facilities other than the U of R may have been deposited here. The Metal Burial Site, which was located north of the Rochester Burial Area, was also excavated in 1972 (USDOE 1982).

1984: The "Comprehensive Radiological Survey, Off-Site Property G, Niagara Falls Storage Site, Lewiston, New York" conducted by the Oak Ridge Associated Universities in 1984, (USDOE 1984) stated that ". . . records describing the storage and burial sites are inconsistent or incomplete as to the exact locations and areas involved. Also, more recent construction activities are likely to have disturbed remaining contaminated material, deleting it or covering it such that it is no longer accessible." This reference to recent construction activities refers to treatment ponds constructed by CWM in the Castle Garden Dump Area of the VPG. During the performance of the survey, approximately 39 borings were installed in the VPG. This document indicates that elevated levels of radionuclides were not observed and no further remedial activities were necessary. However, no borings were installed in the southeastern portion of the property near the Rochester Burial Area during this investigation.

1985, 1986, and 1987: During 1985 and 1986, several Vicinity Properties, as well as Pletcher Road (used as a haul road for radioactive wastes) were the object of remedial activities. These properties included the VPG (USDOE 1987a, USDOE 1989).

Forty-five areas on the VPG were remediated in 1986 (USDOE 1989). The remediated areas are shown in Figure 4. The depth to which soil was remediated is not known but is believed to be the top 0.5 to 1.5 feet (0.15 to 0.5 meters). During the remedial actions, a 55-gallon drum was removed from the metal burial area and "placed in the interim storage area external to the encapsulation cell." (USDOE 1987a). The drum contained a tar-like substance, analysis of which indicated the presence of numerous organic compounds (PAHs), believed to be coal tar and coal tar derivatives. The source of the wastes is unknown (Bechtel, 1998). Radiological monitoring of the drum indicated elevated radiological readings that were confined to the bottom of the drum. Other drums were discovered on the VPG at this time, but due to the unknown extent of the burial, the already committed cleanup budget, and unknown nature of the contaminants, the drums were not excavated immediately.

An electromagnetic (EM) terrain conductivity survey was conducted in March 1987 in the area of the drum excavation to determine the extent of the burials (USDOE 1987a). Several targets were identified within an area approximately 50 feet by 50 feet (15.2 by 15.2 meters).

Excavation work was re-initiated in June 1987. During the excavation of the area, a drum labeled "K-65" was discovered. Thirty-one drums were removed, monitored for radiological constituents, and placed in overpaks. Most of the drums were found without lids, some were ruptured and contents had been spilled. Cleanup of "all traces of the spilled materials" was completed in September 1987 (USDOE 1989). Ninety drums of soil contaminated with the material from the original drums were removed. The area was

inspected by the New York State Department of Environmental Conservation (NYSDEC) which "declared the site cleanup complete and available to be backfilled". A final inspection of the site was conducted by the NYSDEC on October 1, 1987 and the remediation of the area was accepted by NYSDEC (Bechtel 1998).

Another historical reference contains conflicting information as to the total number of drums excavated from this area. The document indicates that in addition to the 31 drums referenced above, 49 additional drums of spilled "sludge" and soil were removed from the site. Of these 49 drums, 25 of the soil-filled drums were transported to the NFSS at the time of the investigation. Twenty-four of the drums were left adjacent to the excavation awaiting analytical results (USDOE 1987a). Information in this reference concerning the number of drums found during the excavation (31) and the drum condition is consistent with the number referenced in the Bechtel document (Bechtel 1998). No further information concerning the final disposition of the 24 drums left adjacent to the excavation was found in the historical record.

2.4 Status as of January 1998

Information in an internal Bechtel memorandum (Bechtel 1998) highlights two outstanding issues associated with the VPG:

1) Soil beneath the liquid treatment pond (including the Castle Garden Dump area) was inaccessible for the 1984 Oak Ridge Associated Universities characterization survey; and
2) Nature, extent and ultimate responsibility of residual polynuclear aromatic hydrocarbon (PAH) organic contamination at the former metal burial site has not been determined.

The historical record is unclear concerning whether the entire Castle Garden Dump area was removed during the 1971-1972 excavation. No documentation concerning the limits of the excavation or the precise boundaries of the Castle Garden Dump has been found. Surveys performed in 1972 indicate elevated radiation levels in the northeast section of the VPG corresponding to the location of the former Castle Garden Dump area. However, the results were suspected to have been caused by radiation from other areas of contamination (known as "shine") outside of the VPG or natural radiation in the roadbed materials (Bechtel 1998).

Verification sampling for radiological constituents was performed during the drum removal at the Metal Burial Site. However, removal of PAH contamination appears to have been conducted based on visual indications of contamination. The levels of PAH remaining in the soil in this area were unknown.

3.0 OBJECTIVES

3.1 Trenching Task, May 2002

Field procedures developed in the RI *Field Sampling Plans* (Maxim Technologies, Inc. 1999) and subsequent addenda, and the Trenching Plan and Addendum to the Field Sampling and Analysis Plan, (Maxim Technologies, Inc. 2002, Appendix B) were followed during this trenching investigation. During the May 2002 trenching activities at the VPG, two trench locations (TG01 and TG02, see Section 4.3.1) were planned in order to investigate the animal carcass burial area. The FSP Addendum was submitted in accordance with the scope of work (SOW) for Delivery Order 0012, Contract DACW49-97-D-0001.

The Field Sampling Plan (FSP) provided the strategy and rationale for performing a characterization of the VPG. Information regarding the site history was provided in the November 1999 Final *Field Sampling Plan – Phase 1 Remedial Investigation* for the NFSS. The activities described in this document were based on the February 2002 SOW for *On-Site Trenching and Associated Sampling* issued by the Buffalo District USACE and subsequent negotiations.

The objectives of the trenching task included:

1) Confirmation of the presence or absence of suspected anomalies based on historical information and previous phases of the remedial investigation and visual site inspection. Anomalies confirmed to be present were to be characterized (e.g., anomaly size, depth, condition and type);
2) Investigation of anomalies disclosed as a result of both the historical review and the geophysical survey (SAIC 2003) of the site; and
3) Determination of the potential nature and extent of contamination, collection of samples of subsurface soil, and analysis of those samples for site radiological and chemical constituents.

The installation of Trenches TG01 and TG02 in May 2002 was suspended when radiologically contaminated laboratory debris was unexpectedly found.

3.2 Trenching Task, September 2002

Based on the discovery of laboratory debris during the May 2002 trenching and a review of additional information concerning the U of R disposal area and VPG, modifications were made to the original FSP Addendum. These modifications included implementation of additional trenching and sampling activities as follows:

1) Completion of Trench TG01. TG01 was cited as a landmark in reference documents (Hooker Electrochemical Company 1957, Hooker Electrochemical Company 1953), relocated slightly further east, and approximately 98 feet (29.9 meters) from the red roof house. This aligned the trench with the centerline of the documented disposal area. The trench was installed to investigate the "University of Rochester Burial Site" shown in Figure 3.

2) The laboratory debris found in TG02 during May 2002 was re-excavated and containerized for disposal.
3) The 60,000 counts per minute (CPM) hotspot found near the north end of TG01 was investigated. This trench location was identified as TG03.
4) The document "Background and Resurvey Recommendations for the Atomic Energy Commission Portion of the Lake Ontario Ordnance Works" (USDOE 1982) states that contaminated materials were excavated from the "University of Rochester Burial Site" in 1972 and the excavated materials were "placed in the spoils pile onsite". Trench TG04 was placed to investigate a large mound of soil located approximately 30 feet (9.1 meters) northwest of the location of trench TG01.
5) TG05 was installed in a depression approximately 200 feet (61 meters) east of the red roof house. This location corresponds to the area identified in the Hooker Electrochemical Company memo (Hooker Electrochemical Company 1953) which indicated the "Rochester Animal dumpings" were located in an area 200 feet (61 meters) east of the red roof house present in the Castle Garden Area.
6) TG06 was installed in the disturbed area evident on the 1950's Aerial photographs (USACE TEC 2002). The features shown in the aerial photograph and the location of exploratory trenches are shown in Figure 5. This area was labeled "ground scan possible" in the USACE TEC 2002 interpretation of the 1958 aerial photo.

3.3 Abandoned Drum Removal Task, July 2003

The focus of this task was to collect and containerize abandoned drums that had been discovered on the VPG property. The FSP Addendum (Maxim Technologies, Inc. 2003) describes the sampling and disposal of abandoned drums at the NFSS and VPG, and the collection of additional surface and subsurface soil samples at the NFSS and the adjacent Niagara Mohawk property. This addendum was a supplement to the 1999 FSP and was submitted in accordance with the SOW for Delivery Order 0012, Contract DACW49-97-D-0001.

The activities described in FSP Addendum were based on the December 2002 SOW "*Additional Surface Water, Sediment and Shallow Soil Sampling*" issued by the Buffalo District USACE. The objectives for this task related to the removal of abandoned drums on the VPG were to:

- Sample and dispose of abandoned drums found on the surface at the VPG and characterize the surface and subsurface soils in the vicinity of the drums; and
- Manage and dispose of investigation-derived waste generated during this task.

4.0 SUMMARY OF INVESTIGATIVE ACTIVITIES

4.1 Review of Aerial Photographs

A series of aerial photographs taken between 1944 and 1995 provided by the Buffalo District USACE in the document *Analysis of Aerial Photography, Area G*, (USACE TEC 2002) were reviewed. No features on the photographs were strongly suggestive of the Rochester Burial Area. However, a disturbed area, approximately 140 feet (42.7 meters) south of the red roof house, is easily seen on the 1958 photograph.

4.2 EM-31 Survey of VPG

In November 2001, a focused frequency domain electromagnetic (EM-31) survey was performed by the Corps investigative team over the entire southern portion of the VPG south of the gravel road to locate the former Rochester Burial Area (USACE 2004). The EM-31 survey was used to search specifically for buried metal or changes in soil properties, which are indications of a burial area.

The survey indicated one near-surface area of interest (where electrical conductivity readings were higher than background) within the vicinity of the former Rochester Burial Area, suggestive of possible buried metallic debris. This area was targeted for investigation during the trenching activities of May 2002 described in Section 3.1.

Geophysical surveys at Vicinity Property G during the Phase I geophysical effort included electromagnetic (frequency domain techniques) and GPR methods. There were no geophysical surveys conducted in this area during the phase two effort. Previous sections provide supportive information on each method's theory, data collection, data processing, and data presentation.

Figure 6 shows the integrated interpretation for the near-surface features and anomalous targets or zones based on the aforementioned classifications. Table 1 provides the ID, location, electromagnetic or magnetic anomaly reference, comments, and interpretation for the features on Figure 6.

An electromagnetic (EM31) survey over a portion of Property G can be interpreted to identify eight anomalous features (CZ601 through CZ608) and two additional features relating to a known fence and an existing structure. A focused (area of dense data measurements) EM31 survey was also conducted over a presumed animal carcass burial location based on historic records. SAIC concludes that no buried metallic waste directly associated with the presumed animal carcass burial location exists within the focused EM31 survey limits. A limited GPR survey was conducted over anomalous zones yielding no quantifiable reflections due to poor signal penetration.

4.3 Trenching Activities

Trenching was selected to investigate the suspect burial area since it allowed for better physical identification and investigation of larger amounts of soil than standard drilling and sampling techniques. The rationale for selection of the trench locations and the trench lengths and depths is presented in Table 2.

The northernmost starting point (identified as the 'A' end) and southernmost ending point (identified as the 'B' end) of each trench location were staked and horizontal coordinates were collected using a Trimble® Global Positioning System survey instrument equipped with real-time differential corrections using the Coast Guard Differential Correction Beacon System. Coordinates of the 'A' and 'B' ends of each trench, sample depth, sample distance referenced from the 'A' end of the trench, sample coordinates and a description of the material in each sample are presented in Table 3.

Each sample was assigned a unique sample ID which incorporated the trench name, a unique four digit sample number, sample depth as measure from the ground surface above the sample location and the horizontal distance the sample was located from the 'A' end of the trench. An example of a subsurface soil sample collected from trench YY using this naming convention would be as follows: TBGYY- #### - XX.X-XXX, where TB indicates a subsurface soil sample, "G " indicates that the trench was located on the VPG, "YY" is the trench number (01 though 06), "####" is the unique four-digit sample number, "XX.X" indicates sample depth in feet and "XXX" indicates the sample distance from the 'A' end of a trench. The sample depth was recorded to the nearest tenth of a foot. The distance from the 'A' end was recorded to the nearest whole foot. If a sample was collected from a depth less than 0.5 feet (0.15 meters), the sample name prefix was changed to "TS", to signify that this sample was a 'surface' sample. In the case of animal carcass and lab debris samples, AC (animal carcass) and LD (lab debris) respectively, were substituted for the "TB" or "TS" designations.

Trench locations and samples collected from each trench are presented in Figure 5. Representative photographs of trenching activities are presented in Appendix C).

Trenching activities were performed on the VPG during two separate mobilizations. The activities performed during these two mobilizations are described below in Sections 4.3.1 and 4.3.2.

4.3.1 Trenching Activities, May 2002

Locations and depths of the radiological samples were based on both the results of the field radiological screening and on the conditions encountered in each trench. The locations of the chemical samples were based on PID results and other evidence of contamination such as staining, odor, etc. Each bucket of material excavated from the trench was monitored with a PID and a gamma survey meter and inspected for evidence of nitroaromatic (explosives) compounds as described in the paragraph below. Excavated material was placed on polyethylene sheeting or polyethylene tarps to prevent the possibility of cross-contaminating the surface soils in the vicinity of the each trench. According to the Trenching Plan, excavated soil that exhibited levels of gamma radiation in excess of four times the local background was to be segregated. During field investigations, instances of soil exceeding this level of gamma radiation were infrequent, and when found in excess of this criterion the soil was fully consumed in sample collection. As each foot of trench depth was completed, the bottom of the trench was surveyed with a magnetometer to detect buried metallic anomalies potentially present in the subsurface.

Due to the proximity of the VPG to TNT production areas of the LOOW, a two step field-screening method was employed to determine the presence or absence of TNT at the trenching locations. The first step, performed with Espray (an aerosol explosives detection reagent), was used to determine if TNT was present. The second step, performed with DTEK field test kits, was used to determine if TNT was present

in the sample at concentrations greater than or equal to 10%. TNT concentrations of 10% or greater in soil were considered to be indicative of a potential explosive hazard. Work was performed according to the Final Addendum to the Site Safety and Health Plan Remedial Investigation at the Niagara Falls Storage Site, Niagara County, New York for Vicinity Property G. No TNT concentrations in excess of 10% were detected.

Trench TG01 was located within an area of VPG reportedly used as a disposal pit for radiologically-contaminated animal carcasses and lab wastes. Available documentation suggested that at some time in the past the contaminated materials were removed from the pit. The location of the pit was not known with certainty.

A large track-mounted excavator was employed during the trenching activities at the VPG. Trench TG01 was staked at the presumed pit location and the first segment of trench TG01, a section approximately 13-feet (4.0 meters) long and 6-feet (1.8 meters) deep was excavated, starting at the 'A' (northernmost) stake. An area of slightly elevated gamma radiation (approximately 20,000 CPM) was found in the trench and a soil sample was collected. All gamma measurements were obtained with a NaI 2-inch by 2-inch gamma detector, and are expressed in units of "counts per minute" (CPM). Average background soil surface gamma measurements were approximately 8,500 CPM, while trench measurements were normally about 15,000 CPM due to the change in geometry with increasing trench depth.

At the time of the trenching, the soils in the vicinity of TG01 were saturated with water. To ensure good footing for the work crew around the trench, the field crew directed the excavator operator to push approximately six inches of mud off an access path. As the health physics technician was walking this path to the trench, elevated gamma radiation was measured at a location on the path approximately four feet (1.2 meters) from trench TG01. The health physics technician and geologist inspected the area and found a piece of rusted metal and field measurements indicated that this metal was the source of the gamma radiation. The field team then probed the area with a shovel and determined that the metal was part of a container. During additional probing with a shovel, the geologist determined that the container was too large to dig out by hand. The excavator was then used to uncover the container. This location was designated TG02. All materials excavated from TG02 were placed on plastic sheeting.

The excavator was used to remove the container from the trench. The container was placed on plastic sheeting for inspection. The container was rusted and in poor condition. Though the field crew believed that while the excavator may have damaged the container, it was their opinion that the container was already breached before it was damaged by the excavator. Syringes, syringe needles, tubing, and other materials thought to be laboratory trash were found in the container. The container and its contents exhibited gamma activity of approximately 250,000 CPM. Based on the discovery of this material in the excavation and the historical use of the area, the work zone was temporarily evacuated. The Site Safety Officer and the Radiation Safety Officer evaluated the site conditions and determined that the investigation could resume after the PPE used by the field crew was upgraded to level C. The exclusion zone was also expanded, downwind air monitoring was instituted, and all spoils were wetted with water to minimize the potential for airborne contamination.

Upon further inspection of the excavated materials, microscope slides, Petri dishes, and glass reagent bottles were found near the original location of the metal container. The field health physics technician measured gamma radiation on the Petri dishes at 290,000 CPM. The bottles also exhibited elevated gamma counts. It is not known whether these glass items were originally in the bucket or were separate from the bucket at the time of disposal. The slides and bottles were found at about 2.5 feet (0.8 meters) bgl (below ground level) – the approximate elevation of the bottom of the metal container.

Two samples, TBG02-2857 and TBG02-3072 (three eight-ounce jars for each sample) were collected from TG02: a soil sample from a location adjacent to and below the metal container and a sample of the microscope slides and associated soil. These samples were held in a refrigerator in a locked storage container at the NFSS until the September 2002 sampling event.

The excavator advanced TG02 to a depth of four feet (1.2 meters) bgl. Additional miscellaneous lab debris was found at depths from 0 to 3.5 feet (1.1 meters) bgl. At four feet (1.2 meters) bgl, the gamma reading in the bottom of the hole was 35,000 CPM and the excavation was terminated at this depth. Plastic was placed in the hole temporarily to demarcate the limits of the excavation until excavation could be resumed. The contaminated spoils and the container were placed back into the trench, and the excavation was capped with an additional two feet (0.6 meters) of clean soil. The 13-foot (4.0 meters) trench at TG01 was also backfilled with clean spoils. Foreign objects such as laboratory debris were removed from the soil used to backfill the trench, and these objects were placed in a drum to be managed as IDW.

The investigation at VPG was suspended at this point. Due to the presence of laboratory debris, there was a concern that further investigation of the area might encounter unanticipated biological hazards. The field crew decontaminated all equipment that came in contact with the soils at the VPG and the excavator was brought back onto the NFSS. Decontamination procedures were modified to include a rinse of all equipment with a 5% bleach solution, which was retained and containerized in a tank on NFSS property. All personnel performing decontamination activities were dressed in level C PPE.

All photoionization detector (PID) readings of the excavated soils from TG01 and TG02 and in the breathing zone were consistent with background conditions. The results of perimeter and personnel air monitoring samples collected at the VPG during the investigation did not show evidence of airborne contamination above background concentrations. Following trenching activities, the area around TG01 and TG02 was posted with "Danger" ribbon.

A gamma survey of the trench vicinity found another location four feet (1.2 meters) east of the TG01 "A" stake that had a gamma reading of 60,000 CPM at the ground surface. No further investigation was made at this location during the May 2002 trenching.

Based on the discovery of syringes, Petri dishes, pipettes, and assorted other laboratory wastes during the excavating activities at trenching location TG02, work was suspended pending a revision of safety protocols and sampling procedures. Trench locations were backfilled and prior to seeding, and a gamma survey of the trenches was performed to ensure that surface soils were consistent with background levels.

4.3.2 Trenching Activities, September 2002

During the September 2002 mobilization, lab debris encountered while trenching was either sampled or containerized pending disposal as IDW. Trenches were backfilled with clean soil excavated from the trenches. The trench locations were planted with grass seed after backfilling. Laboratory debris was removed from the soil used to backfill the trenches, and placed in a drum to be managed as IDW.

4.3.2.1 Sample Collection. During the September 2002 trenching activities, a total of 44 soil samples (designated with a TBG prefix for samples collected below the surface, or with a TSG prefix for samples collected at the surface), plus five QC samples, were collected. Five Lab Debris (LDG) samples (plus one QC sample) and one carcass (ACG) sample were also collected during September 2002.

The starting (northernmost) point of each trench location (identified as the 'A' end) was staked and used as the primary reference point for identifying the location of soil, lab debris and animal carcass samples, anomalies encountered during trenching, and soil type. Sample identifications incorporated location information referenced from the 'A' end of the trench and sample depth information referenced to the nearest 0.1 foot bgl as described in Section 4.3 above. Samples (both radiological and chemical) were collected from trench areas of special interest, such as soil beneath radiologically impacted lab debris, the trench bottom or adjacent to a sand lens or other subsurface hydraulic conduit. Cross sections of each trench, depicting sample locations and depths, soil types and the location of buried anomalies are presented in Figures 6 through 11.

Coordinates of the 'A' and 'B' ends of each trench, sample depth, sample distance referenced from the 'A' end of the trench, sample coordinates and sample descriptions are presented in Table 3. Field notes taken during the sampling of the trenches are presented in Appendix D. A summary of the findings in each trench is presented below.

TG01 - Length: 65 feet (19.8 meters). Depth: 12 feet (3.7 meters) bgl (Maximum).

Samples collected:

Animal Carcass Sample
ACG01-3008-01.0-006

Laboratory Debris Samples
LDG01-3012-03.0-021
LDG01-3013-03.0-010
LDG01-3014-03.0-015

Soil Samples
TBG01-3000-06.0-050
TBG01-3001-03.0-021
TBG01-3002-02.0-025
TBG01-3003-05.0-016
TBG01-3004-02.0-000

TBG01-3005-03.0-021
TBG01-3006-02.0-000
TBG01-3007-06.0-050
TBG01-3070-03.0-021
TBG01-3075-03.0-021

TG01 was initially planned to have a depth of 12 feet (3.7 meters) over its entire length. Upon inspection of the soils in the first 20 linear feet (7 meters) of the trench to a depth of 12 feet (3.7 meters), it was determined that native soil was present beginning at a depth of six to seven feet (1.8 to 2.0 meters). The depth of completion was decreased to approximately six to seven feet (1.8 to 2.0 meters) for the remaining 45 linear feet of trench. Scattered pieces of transite were noted on the surface to a depth of approximately two feet throughout most of the trench. Laboratory debris found during trenching of TG01 included: a trash can lid and five-gallon trash can, a glass bottle neck and glass microscope slide and a 500 ml bottle containing a dry, pink solid material submitted as sample LDG01-3013-03.0-015. Items that were found within the trash can or in close proximity to the trash can included: syringes, syringe needles, tubing, microscope slides, gloves, tongs, rubber stoppers and rubber tubing. A small bone, believed to be a pelvic bone of a small mammal was found and represented the single artifact encountered which could be indicative of animal carcass burial. This bone was submitted for analysis as sample ACG01-3008-1.0-006. The locations and depths of these items within the trench and the location of soil samples are presented in Figure 7.

TG02 - Length: 12 feet (3.7 meters). Depth: 4.5 feet (1.4 meters) bgl.

Samples collected:

Animal Carcass Sample
None Found

Laboratory Debris Samples
LDG02-3017-03.0-001

Soil Samples
TBG02-2857-02.0*
TBG02-2858-02.0*
TBG02-3015-04.5-001
TBG02-3016-04.5-001
TBG02-3072-02.0*
TBG02-3073-02.0-001
TBG02-3076-02.0-001

*These samples were collected in May 2002, prior to elongation of the trench. No distance from the 'A' end is included in the sample designation.

The laboratory debris unearthed in TG02 during May 2002 was re-excavated and containerized for disposal. Laboratory waste/debris was containerized in a UNA1A open head drum, lined with a 60 mil

drum liner. The drums were placed in the Drum Storage Area of the NFSS pending disposal. No evidence of animal carcass burial was encountered in the trench. The location and depth of the buried trash can within the trench and the location of soil samples are presented in Figure 8.

TG03 - Length: 15 feet (4.6 meters). Depth: four feet (1.2 meters) bgl.

Samples collected:

Animal Carcass Sample
None Found

Laboratory Debris Samples
None Collected

Soil Samples
TBG03-3018-01.0-011
TBG03-3019-04.0-015
TBG03-3071-01.0-011
TBG03-3074-01.0-011

The 60,000 CPM hotspot found near the north end of TG01 was investigated. Two small chips of suspected uranium residues were found during the excavation of Trench TG03. One chip was found at a depth of one foot (0.3 meters), approximately two feet (0.6 meters) from the 'A' end of the trench and was analyzed as sample TBG03-3074-01.0-011. (The distance from the 'A' end of the trench was mislabeled in the sample name.) The other chip was found near the surface approximately 11 feet (3.4 meters) from the 'A' end of the trench and was analyzed as sample TBG03-3071-01.0-011. No laboratory debris or evidence of animal carcass burials was encountered in the trench. The location and depth of the chips and soil samples is presented in Figure 9.

TG04 - Length: 50 feet (15.2 meters). Depth: six feet (1.8 meters).

Samples collected:

Animal Carcass Sample
None Found

Laboratory Debris Samples
LDG04-3037-01.0-013

Soil Samples
TBG04-3025-01.0-010
TBG04-3026-05.0-013
TBG04-3027-04.0-027
TBG04-3028-06.0-030
TBG04-3029-04.0-040

TBG04-3030-04.0-027
TBG04-3031-06.0-030
TBG04-3032-04.0-040

Trench TG04 was placed to investigate a large mound of soil located approximately 30 feet (9.1 meters) northwest of the location of trench TG01. One sample of miscellaneous lab debris was collected and analyzed. The location and depth of the soil samples are presented in Figure 10.

TG05 - Length: 50 feet (15.2 meters). Depth: Ten feet (3.0 meters) bgl.

Samples collected:

Animal Carcass Sample
None Found

Laboratory Debris Samples
None Found

Soil Samples
TBG05-3040-05.0-012
TBG05-3041-10.0-014
TBG05-3042-04.0-035
TBG05-3043-03.0-045
TBG05-3044-07.0-050
TBG05-3045-10.0-014
TBG05-3046-04.0-035
TBG05-3047-07.0-050

TG05 was installed in a depression approximately 200 feet (61 meters) east of the red roof house. This location corresponds to the area identified in the Hooker Electrochemical Company memo (Hooker Electrochemical Company 1953) which indicated the "Rochester Animal dumpings" were located in an area 200 feet (61 meters) east of the red roof house present in the Castle Garden Area. A pile of surface debris consisting of brown dry clay with glass and plastic debris was located from the point of beginning of the trench to 15 feet (4.6 meters) from the 'A' end of the trench. The location and depth of the soil samples is presented in Figure 11.

TG06 - Length: 100 feet (30.5 meters). Depth: Seven feet (2.1 meters).

Samples collected:

Animal Carcass Sample
None Found

Laboratory Debris Samples
None Found

Soil Samples
TBG06-3056-02.0-035
TBG06-3057-02.0-045
TBG06-3058-01.0-070
TBG06-3061-02.0-045
TSG06-3055-015*
TSG06-3059-085*
TSG06-3060-015*
TSG06-3062-085*

*No depth is indicated in the sample designation, since these were surface samples.

This trench was installed in the disturbed area evident on the 1950s aerial photographs (USACE TEC 2002). No laboratory debris or evidence of animal carcass burials was encountered in the trench. The location and depth of the soil samples is presented in Figure 12.

After each trench was backfilled, gamma surveys of the surface were performed to ensure surface soil was consistent with background.

4.3.2.2 Sample Analysis. Soil, animal carcass, and laboratory debris samples from the six trenches were analyzed for the following radiological parameters/methods:

- HASL-300, Gamma Spec (U-238, Ra-226, Ra-228, Th-228, U-235, Pa-231, Ac-227, Co-60, Cs-137, and Am-241)
- Gross alpha/beta, Gas Flow EPA 900 mod.
- Isotopic Uranium, Alpha Spec, HASL 300
- Isotopic Thorium, Alpha Spec, HASL 300
- Isotopic Plutonium, Alpha Spec, HASL 300
- Strontium-90, Gas Flow, EPA 900 mod.
- Total Activity, Liquid Scintillation

In order to confirm the presence or absence of chemical contamination associated with laboratory debris, animal carcass, and soil, selected samples were analyzed for the following:

- VOCs, Method 5035/8260
- Pesticides/PCBs, 3350B/8081/8082
- SVOCs, 3550B/8270
- Total Metals (23 CLP metals, plus lithium and boron), 6010/7000

To characterize the laboratory debris and decontamination fluids for disposal, the following analyses were performed:

Laboratory Debris

- TCLP VOA Extraction with TCLP-VOA Analysis, 1311/8260
- TCLP Extraction (non-VOA), 1311
- TCLP-SVOC, 8270
- TCLP-Pesticides, 8081
- TCLP-Herbicides, 8151
- TCLP-Metals, 6010/7000
- Ignitability, SW-846-1110
- Corrosivity as pH, 9045
- Reactivity, 7.3
- Paint Filter

Aqueous Samples

- Isotopic Th-228, Th-230 and Th-232, Alpha Spec, HASL 300
- Ra-226, EPA 903.1 mod, Radon Emanation
- Gamma Spec (U-238*, Ra-226*, Ra-228, Th-228*, U-235*, Pa-231, Ac-227, Co-60, Cs-137, and Am-241)
- Isotopic Uranium 234/235/238, Alpha Spec HASL 300
- Gross Alpha/Gross Beta, Gas Flow, EPA 900
- Sr-90, Gas Flow, EPA 900
- Pu-238,239/240, Alpha Spec, HASL 300
- Volatiles, 5030B/8260
- Semi-Volatiles, 3510C/8270
- Pesticides/PCBs, 3510C/8081/8082
- Metals (TAL) Total and Dissolved, 6010/7000

*Not used for definitive data (superseded by another method).

Radiological characterization of the laboratory debris for disposal was based on the results of the radiological field samples and radiological screening performed by Health Physics technicians.

4.4 Abandoned Drum Removal Task, July 2003

Drum removal activities on the VPG were performed in July 2003. The following procedures were used to characterize each drum:

1) The condition and integrity of the drum was evaluated and recorded.
2) The interior and exterior of the drum and the drum contents were surveyed with a NaI detector and a PID.
3) A composite sample of the drum contents was collected, using a bucket auger, shovel or stainless steel spoon, as appropriate.

4) A portion of the composited sample was reserved and saved for use in preparing sample 'VPGOPD1-3367' described in Section 4.5.1.

The samples collected from inside the drums were analyzed for the parameters presented in Table 4.

4.4.1 Abandoned Drum Sample Collection/Removal

During this field effort, nine drums from three locations were containerized and removed from the VPG. The former locations of the abandoned drums are shown on Figure 13.

The drums were in varying states of deterioration, necessitating the use of a USACE-owned Bobcat to excavate the drums and drum contents. Samples of residue that were present in the drums were collected during drum removal. During the drum removal activities, some soil was also containerized. Some of the abandoned drums were in a deteriorated condition and in some cases more than one overpack or 55-gallon drum was required to contain a given deteriorated drum, drum contents and excavated soil. Of the nine abandoned drums, four drums contained non-soil contents of sufficient volume to allow for collection of samples for analysis. Samples of drum contents from four drums were collected and analyzed for radiological parameters, pesticides, polychlorinated biphenyls (PCBs) and metals. Radiological constituents detected in drums included alpha radiation, cesium-137, radium-226, and total uranium (Drum 9); radium and total uranium (Drum 10); uranium-238 (Drum 11); and beta radiation, radium-226, total uranium, uranium-234, uranium-235, and uranium-238 (Drum 12). The results of these analyses are presented in its entirety in Appendix E.

IDW generated during this field effort included seven *UNA1A* 55-gallon drums and six 85-gallon polyethylene overpack drums containing abandoned drums, drum contents and excavated soil. No liquid IDW was generated during this task. A summary of the drums generated during this task is presented in Table 5.

Overpack drums were transported using either the USACE Bobcat or a pickup truck to the Drum Storage Area, pending disposal.

4.5 VPG IDW Characterization

Radiological characterization of the contents of IDW containers were based on analytical results of samples collected on the VPG. VPG IDW containers were packed with PPE and other contact waste such as spoil pile tarps, plastic sheeting and other solid IDW. IDW characterization utilized an algorithm to estimate radionuclide activity in each container.

VPG mean radionuclide concentrations (pCi/g) are multiplied by estimated soil/media weight (g) to characterize container activity. By subtracting the tare weight of the container from the container's gross weight, a "net" content weight was calculated. The estimated soil weights for each waste type modeled in the algorithm included conservative assumptions concerning the amount of soil present in each drum. Based on the waste type (PPE, tarps, etc.), a fraction of the weight was estimated as soil (19%-100%). By multiplying the estimated amount of soil by the mean concentration of each radionuclide in the appropriate waste stream, an overall container radionuclide inventory was calculated. Two waste streams (datasets),

Laboratory Debris and Trench Data were incorporated in the development of mean radionuclide concentrations. All non-radiological, potassium-40, gross alpha, gross beta and total activity were eliminated before calculating summary statistics.

The animal carcass sample (ACG01-3008-01.0-006) analytical results were not included in the calculation as the piece of identified animal carcass was sent to the laboratory and consumed during analysis. Drum "VPG Lab Debris" contains laboratory debris collocated with trench soil excavated in the vicinity of the laboratory waste. Although the laboratory waste/soil ratio is approximately 1 to 3, a conservative estimate of 1 to 1 was used in the development of the VPG IDW Calculator. The VPG IDW Calculator was submitted in Microsoft Excel® format to the Buffalo District USACE concurrently with a previously submitted technical memorandum. The VPG IDW calculator is shown in Appendix F.

All drums listed in the drum inventory were stored on the former building pad known as the Drum Storage Area located in the northern portion of the NFSS. Drums were palletized and covered with tarps to prevent water from accumulating on the drum tops thereby reducing infiltration of water into the drums and to reduce drum corrosion. Subsequently, all drums were moved to Building 401. IDW disposal is scheduled for the last quarter of FY2007.

4.5.1 Disposal of IDW

A composite waste characterization sample (VPGOPD1-3367) of the contents of the thirteen drums generated was collected and submitted for analysis by GEL for the following parameters:

- TCLP-VOA
- TCLP-SVOC
- TCLP-Pesticides
- TCLP-Herbicides
- TCLP-Metals
- Ignitability
- Corrosivity (as pH)
- Reactivity
- Paint Filter Test

The results of analysis of VPGOPD1-3367 are presented in Appendix G**.** The analytical results for the abandoned drum contents samples were evaluated to determine if the drum contents of the abandoned drums were similar. The materials within the abandoned drums exhibit similar chemical and radiological characteristics and will be disposed of at an appropriate facility.

Approximately 550 gallons of liquid IDW were stored in Tank 3 at the Liquid IDW Storage location at the NFSS. This liquid waste was treated in accordance with procedures approved by the NYSDEC. Wastewater was discharged to the City of Lockport Publicly Owned Treatment Works.

Solid waste generated during the filtration of the liquid waste was collected in drums for disposal with other investigation-derived wastes.

5.0 METHODS USED TO EVALUATE THE ANALYTICAL RESULTS

Analytical results for soil were compared to NFSS background data, where available. Soil background concentrations from all depths were used for comparison with VPG soil concentrations. Background data was obtained from the NFSS Remedial Investigation Report (SAIC 2007). Total Activity datum was not used in the screening for SRCs. Due to a lack of a suitable background data set, laboratory debris and the animal carcass sample were not compared to a background data set. The method employed is described below. A summary of analytical results are included in the Tables 7 and 7. Sampling locations in each trench are depicted in Figures 7 through 12.

Site Related Compounds (SRCs) were identified when:

1) Results in any sample exceeded the background screening value. The background screening value was defined to be the lesser of either the maximum concentration measured in the background data set or the 95% upper tolerance limit (UTL) of the background data set; and
2) No background data was available and results in at least one sample exceeded the detection limit.

Using this method, four results were possible:

1) Chemicals that were analyzed but not detected in any sample (not an SRC);
2) Chemicals which were detected in a sample but at levels which did not exceed the background screening value (not an SRC);
3) Chemicals that were detected at levels which exceeded the background screening value in at least one sample (identified as a SRC); and
4) Chemicals which were detected in any sample for which no background data was available (identified as a SRC).

The process of evaluation of analytical results to determine SRCs is presented in Figures 14 and 15.

5.1 Site Related Compounds (SRCs)

The following SRCs were identified:

Chemical Parameters

Aluminum	Iron
Barium	Lead
Beryllium	Lithium
Boron	Magnesium
Cadmium	Nickel
Calcium	Potassium
Chromium	Selenium
Copper	Silver

Sodium	alpha-BHC
Thallium	alpha-Chlordane
Vanadium	Dieldrin
Zinc	Endosulfan 1
Aroclor-1242	gamma-BHC (Lindane)
Aroclor-1260	gamma-Chlordane
4,4'-DDD	Methoxychlor
4,4'-DDE	Benzoic Acid
4,4'-DDT	Acetone
Aldrin	Toluene

Radiological Parameters

Actinium-227	Strontium-90
Cesium-137	Thorium-230
Gross Alpha	Thorium-232
Gross Beta	Total Activity
Plutonium 239/240	Uranium-234
Protactinium-231	Uranium-235-Alpha
Radium-226	Uranium-238-Alpha

Laboratory results reported as U-233/234 are stated in this report as U-234. Laboratory results reported as U-235/236 are stated in this report as U-235.

6.0 NATURE AND EXTENT OF CONTAMINATION

The following sections describe the SRCs identified through the comparison of the analytical data from surface and subsurface soil samples to the evaluation criteria. Specific trench locations and depth of detection of each SRC is presented in Tables 8 and 9. A visual depiction of the horizontal and vertical extent of SRCs found in Trenches TG01 through TG06 is presented in Figure 16.

6.1 Surface Soil

The trenching investigation was performed in order to investigate burial areas and subsurface anomalies associated with laboratory debris, animal carcasses, or other radiological and chemical contamination. Screening techniques such as organic vapor monitoring, TNT screening, and radiation monitoring, and visual inspection were used, in accordance with the Field Sampling Plan Addendum for the Trenching Investigation. The screening techniques did not typically result in identification of surface sampling locations.

Metals: Iron (Fe), potassium (K), thallium (Tl), and vanadium (V), were identified as chemical SRCs in surface soil from Trench TG06.

Organic Compounds: Aroclor-1260, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT and acetone were identified as chemical SRCs in surface soil from Trench TG06.

Radiological Parameters: Gross alpha and gross beta were identified as SRCs in surface soil at Trench location TG06.

6.2 Subsurface Soil

Metals: The following metals were identified as SRCs in at least one subsurface soil sample collected during the trenching at the VPG: aluminum, barium, beryllium, boron, cadmium, calcium, chromium, copper, iron, lead, lithium, magnesium, nickel, potassium, selenium, silver, sodium, thallium, vanadium and zinc.

Organic Compounds

Pesticides/PCBs - The following Pesticides/PCBs were identified as SRCs in at least one subsurface soil sample collected during the trenching at the VPG: Aroclor-1242, Aroclor-1260, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, aldrin, alpha-BHC, alpha-chlordane, dieldrin, endosulfan 1, gamma-BHC (lindane), gamma-chlordane, methoxychlor, benzoic acid.

Organic Compounds – Acetone, toluene, and benzoic acid were identified as an SRC in subsurface soils from at least one sample

Radiological Parameters: The following radiological parameters were identified as SRCs in at least one subsurface soil sample collected during the trenching at the VPG: actinium-227, gross alpha, gross beta radiation, cesium-137, plutonium-239/240, protactinium-231, radium-226, strontium-90, thorium-230,

thorium-232, uranium-234, uranium-235-alpha and uranium-238-alpha. Plutonium 239/240 was detected in subsurface soils at levels up to 17.6 pCi/g.

6.3 Lab Debris/Animal Carcass Samples

Results of the analysis of laboratory debris samples and the single animal carcass sample were not subjected to the SRC screening process due to lack of a suitable background data set. Laboratory debris and animal carcass samples were found to contain plutonium, strontium, radium-228, and uranium. As shown in Table 6, strontium-90 and plutonium-239/240 were found in the animal bone sample at concentrations of 306 and 8.08 pCi/g, respectively. In comparison, maximum strontium-90 levels in rabbit bones at USDOE's Hanford Site in 2005 were 0.249 pCi/g (USDOE 2006). Literature reviewed suggests that radionuclide (e.g. Sr-90), activities in animal bones are highly variable among various species, depending on their habitat, lifespan, and the proximity of the monitoring site to sources of radioactivity. Strontium-90 and plutonium-239/240 were found in lab debris samples at levels as high as 4.48 and 2.23 pCi/g, respectively. All laboratory debris and animal carcass materials encountered during the trenching activities either were consumed during the analysis of the media at the analytical laboratory or containerized pending disposal. The presence of additional similar animal carcass and lab debris materials is undetermined. For the reasons stated above, analytical results of samples of the media found do not necessarily represent contamination present on the VPG. They are representative of previous disposal of radiologically impacted wastes in the area. (Locations of laboratory debris samples and the animal carcass sample were presented in Figures 5, 7, 8, and 9.)

7.0 CONCLUSIONS

Based on historical records, aerial photos, visual observations, and results of electromagnetic survey and gamma screening, potential anomalies were identified and six trenches were located on the VPG. The length of the trenches varied from 6 to 100 feet (1.8 to 30.5 meters), and the depths ranged from 2 to 12 feet (0.6 to 3.7 meters).

Results of trenching confirmed the presence of laboratory and building debris, chemical constituents, and/or radiological constituents in trenches at levels above background levels defined for the NFSS. Chemical and radiological parameters determined to be SRCs include metals, volatile and semivolatile organics, PCBs, pesticides, and numerous radionuclides. Results included:

- At Trench TG01, [65-feet (19.8 meters) long, six- to 12-feet (1.8 to 3.7 meters) deep] a trash can containing laboratory debris, a trash can lid, one pelvic bone of an unidentified animal, transite material, and possible backfill material were found during trenching, at depths ranging from near the surface to 3-feet (0.9 meters) below the surface. Chemical and radiological SRCs were confirmed through sampling and analysis. Chemical SRCs were found at depths ranging from two- to six-feet (0.5 to 1.8 meters) below the surface. Radiological SRCs were detected one- to three-feet (0.3 to 0.9 meters) below the surface.
- At Trench TG02, [12-feet (3.7 meters) deep, 4.5-feet (1.4 meters) deep] a trash can containing a variety of laboratory debris, and other widely scattered laboratory debris, was found at depths from near the surface to three-feet (0.9 meters) below the surface. Chemical SRCs were found at a depth of 4.5-feet (1.4 meters) below the surface. Radiological SRCs were found two- to 4.5-feet (0.6 to 1.4 meters) below the surface.
- Trench TG03 [15-feet (4.6 meters) long, 4-feet (1.2 meters) deep] was the site of two pencil eraser-sized radiological "chips" with levels of gross alpha and beta radiation, radium-226, thorium-230, uranium-234, and uranium-238 several orders of magnitude above background. These chips were found one-foot (0.3 meters) below the surface. Other radionuclide SRCs were also found. Several chemical SRCs were detected in a sample collected four-feet (1.2 meters) below the surface.
- Trench TG04 [50-feet (15.2 meters) long, 10-feet (3.0 meters) deep] was the only one of the six trenches in which radiological SRCs were not detected. One piece of laboratory debris was found in the trench, beneath a mounded area one-foot (0.3 meters) bgl. Chemical SRCs, including metals, PCBs, and pesticides, were found through analysis of samples collected four- to six-feet (1.2 to 1.8 meters) below grade level.
- At Trench TG05 [50-feet (15.2 meters) long, ten-feet (3.0 meters) deep], glass and plastic debris was found near the surface in a mounded area. Chemical SRCs were found in samples collected four- to ten-feet (1.2 to 3.0 meters) bgl. Radiological SRCs were found in samples collected three- to five-feet (0.9 to 1.5 meters) bgl.
- Trench TG06 [100-feet (30.5 meters) long, 7-feet (21 meters) deep] contained chemical and radiological SRCs in samples collected from the surface to two-feet below the surface.

The May and September 2002 sampling and analysis of NFSS VPG soils identified elevated concentrations of radium-226 (Ra-226) that may be linked to activities at NFSS. In fact, one sample (TBG03-3071-01.0-011) contained 74,800 pCi/g of Ra-226. This activity approaches the levels present in K-65 residues currently stored in the interim cell and historical information links VPG to K-65-related activities. Because of the materials historically known to be present onsite, Ra-226 concentrations of this order of magnitude can likely be linked with K-65 residues, and it is reasonable to assume that VPG was contaminated by the types of waste materials currently stored in the interim cell.

The sampling effort also identified elevated concentrations of plutonium-239/240 (Pu-239/240) and strontium-90 (Sr-90). Nine Pu-239/240 detections were reported with concentrations ranging from 1.34 to 2.23 pCi/g in lab debris, 0.409 to 17.6 pCi/g in trench soil and 8.08 pCi/g in the animal carcass sample, and twelve Sr-90 detections were reported with concentrations ranging from 0.576 to 4.48 pCi/g in lab debris, 1.37 to 225 pCi/g in soil, and 306 pCi/g in the animal carcass sample. These contaminants are not linked with historical activities at NFSS but are linked to activities by the U of R. Thus, it is concluded that VPG was radiologically contaminated through activities from two independent sources and that they were likely to have been: NFSS and U of R. The available data and the historical information associated with these potential sources support the conclusion that U of R is the source of the Pu-239/240 and Sr-90 contamination and NFSS is the source of the Ra-226 concentration.

Chemical and radiological SRCs were found in Trenches TG01 through TG06 at VPG. It should be noted that maximum levels of several of the radiological constituents detected were "remediated" through sampling. For example, the radiologically-contaminated (e.g. strontium-90, plutonium-239/240) animal bone analyzed was the only carcass related-item found through the excavations. All contaminated laboratory debris encountered was either consumed through analysis or containerized in a drum for disposal as investigation-derived waste. Maximum activities of radionuclides such as radium-226, thorium-230, uranium-234, and uranium-238 were present in small chips that were collected for analysis. The extent of presence of similar materials on VPG property at locations other than the six trenches excavated is unknown.

8.0 RECOMMENDATIONS

The investigation performed at VPG confirmed the presence of chemical and radiological SRCs in surface and subsurface soils. The extent of this contamination, as well as the presence of additional laboratory debris, K-65 residues, and other chemical and radiological SRCs is unknown. Evaluation of the VPG property will be conducted in accordance with the CERCLA process. A thorough Remedial Investigation will be initiated once funding is available, a site access agreement is completed, and physical obstructions are removed to allow access to the entire site for investigative purposes.

9.0 REFERENCES

Bechtel 1983. Niagara Falls Storage Site (NFSS) Environmental Monitoring Report, Calendar Year 1982, prepared by Bechtel National, Inc., Nuclear Fuel Operations, P.O. Box 350, Oak Ridge, TN for US Department of Energy Under Contract No. DE- AC05-81OR20722, May 1983. FUSRAP Document No. 10-05-202-002. Also Status of NFSS SPDES Permit, by DOE Oak Ridge Operations, dated Apr 12 1983. E-15078.

Bechtel 1998. Interoffice memorandum Steve Nakasaki to Surajit Amrit, Niagara Falls Storage Site - Data/Information Pertaining to the Specific Areas in the Off-Site Vicinity Property G. January 1998.

Bechtel 1998. "Niagara Falls Storage Site - Data/Information Pertaining to the Specific Areas in the Off-Site (Vicinity) Property G", Memo from Steve Nakasaki of BNI/FUSRAP at Tonawanda, New York to Sarajit Amrit of Bechtel, dated January 26, 1998. FUSRAP Document No. 7340/158.

Hooker 1958. Map - "Plot Plan Structure - Sht. 2", Hooker Electrochemical Co., Drawing A-D-163, Rev. 2, dated 3/21/58.

Hooker Electrochemical Company 1953. Interoffice Memo, Health and Safety Meeting between Hooker, NYOO and Cleveland Area Office, September, 17, 1953

Hooker Electrochemical Company 1955. Interoffice Memo from A.P Walker to F. W. Malone, Clean-up of Radioactive Waste deposits in Olin-Mathieson-Navy Area, July 15, 1955.

Hooker Electrochemical Company 1957. Interoffice Memo to W. B Harris concerning a Site Visit to Niagara Falls Storage Site, May 19, 1955.

Maxim Technologies, Inc. 1999. Field Sampling and Analysis Plan for the Remedial Investigation at the Niagara Falls Storage Site. Prepared by Maxim Technologies Inc., November, 1999.

Maxim Technologies, Inc. 2002a. Technical Memorandum, Recommendations for Completion of Trenching at the Animal Carcass Burial Area Vicinity Property "G", Prepared by Maxim Technologies Inc., June 2, August 2002.

Maxim Technologies Inc. 2002b. Trenching Plan and Addendum to the Field Sampling and Analysis Plan, September, 2002

SAIC 2003. *Gamma Walkover Survey and Geophysical Survey for the Niagara Falls Storage Site*.

SAIC 2007. *NFSS Remedial Investigation Report*, Revision 2.

SAIC September 2005. NFSS Background, Private Communication.

USACE 1998. History Search Report, Lake Ontario Ordnance Works (LOOW), Niagara County, New York. Prepared by EA Engineering Science and Technology, Inc. for the U.S Army Corps of Engineers, Baltimore District. 1998.

USACE 1999. Final Report for Phase I Remedial Investigation at the Former Lake Ontario Ordnance Works (LOOW) Niagara County, New York, prepared for U.S. Army Corps of Engineers-Baltimore District, prepared by EA Engineering, Science, and Technology, Sparks, Maryland, July 1999

USACE 2002. Summary of Historical Assessment to Identify ROPCs at the NFSS Vicinity Property G Rochester Burial Area, United States Army Corps of Engineers - Buffalo District, July 2, 2002.

USACE 2004. FUSRAP Fact Sheet Niagara Falls Storage Site (NFSS) Former University of Rochester Burial Investigations, Vicinity Property G (VPG), June 2004, United Sates Army Corps of Engineers Buffalo District.

USACE TEC 2002. Analysis of Aerial Photography, Property G, United States Army Corps of Engineers, Engineer Research and Development Center, August 2002.

USDOE "Summary for Property G Drum Excavation," Letter From J. A. Arenson of Bechtel National Inc. to R. G. Atkin, USDOE. FUSRAP Document No. 046004.

USDOE 1982. Background and Resurvey Recommendations for the Atomic Energy Commission Portion of the Lake Ontario Ordnance Works, prepared by Environment and Conservation Directorate Eastern Technical Division, The Aerospace Corporation, Washington, D.C. for U.S. Department of Energy, dated November 1982. Contract No. DE-AC01-82-EP15100. Aerospace Report No. ATR-82(7963-04)-1. FUSRAP Document No.09668.

USDOE 1983. Action Description Memorandum, Niagara Falls Storage Site, Proposed Interim Remedial Action for Fiscal Year 1983. Prepared by the Division of Environmental Impact Studies, Argonne National Laboratory, Argonne, Illinois for the U.S. Department of Energy, January 1983.

USDOE 1984. Comprehensive Radiological Survey Off-Site Property G, Niagara Falls Storage Site, Lewiston, New York. Prepared by Oak Ridge Associated Universities (J.D. Berger) for the U.S. Department of Energy, April 1984.

USDOE 1984. Radiological Survey and Remedial Action on a Portion of SCA Chemical Services Property, Lewiston, New York, Report prepared by the Manpower Education, Research, and Training Division of Oak Ridge Associated Universities (ORAU), Oak Ridge, TN, under Contract DEACO5-76OR00033 with the U.S. Department of Energy, dated October 9, 1984.

USDOE 1985. Verification of 1983 and 1984 Remedial Actions Niagara Falls Storage Site Vicinity Properties, Lewiston, New York, prepared by S. A. Wical, M. R. Landis, and A. J. Boerner of Oak Ridge Associated Universities for USDOE. FUSRAP Document No. 064655.

USDOE 1986. "Remedial Actions on SCA Chemical Services Property," Letter from USDOE to SCA Chemical Services Inc., December 29, 1986.

USDOE 1987a. Excavation of Drums from the NFSS Vicinity Property 'G', letter w/report to Mr. Ted Gable, Air & Waste Management Division, U.S. Environmental Protection Agency, from S.W. Ahrends, Director, Technical Services Division, Department of Energy-Oak Ridge, TN, dated August 10, 1987. FUSRAP Document No.046887.

USDOE 1987b. "Briefing for LOOW Citizen Oversight Committee by United States Department of Energy", Niagara Falls Storage Site Remedial Action Project, Lewiston, New York, October 10, 1987.

USDOE 1987c. FUSRAP Project, Radiological and Chemical Results of the Drummed Material from the NFSS Vicinity Property "G", Prepared by J. A. Arenson Bechtel National Inc., for R. G. Atkins of USDOE, October 20, 1987, FUSRAP Document No. 048608.

USDOE 1988a. Radiological Survey of the Niagara Falls Storage Site, prepared by Oak Ridge Associated Universities, for The Division of Facility and Site Decommissioning Projects USDOE, FUSRAP 146224, (ORAU 88/K-112).

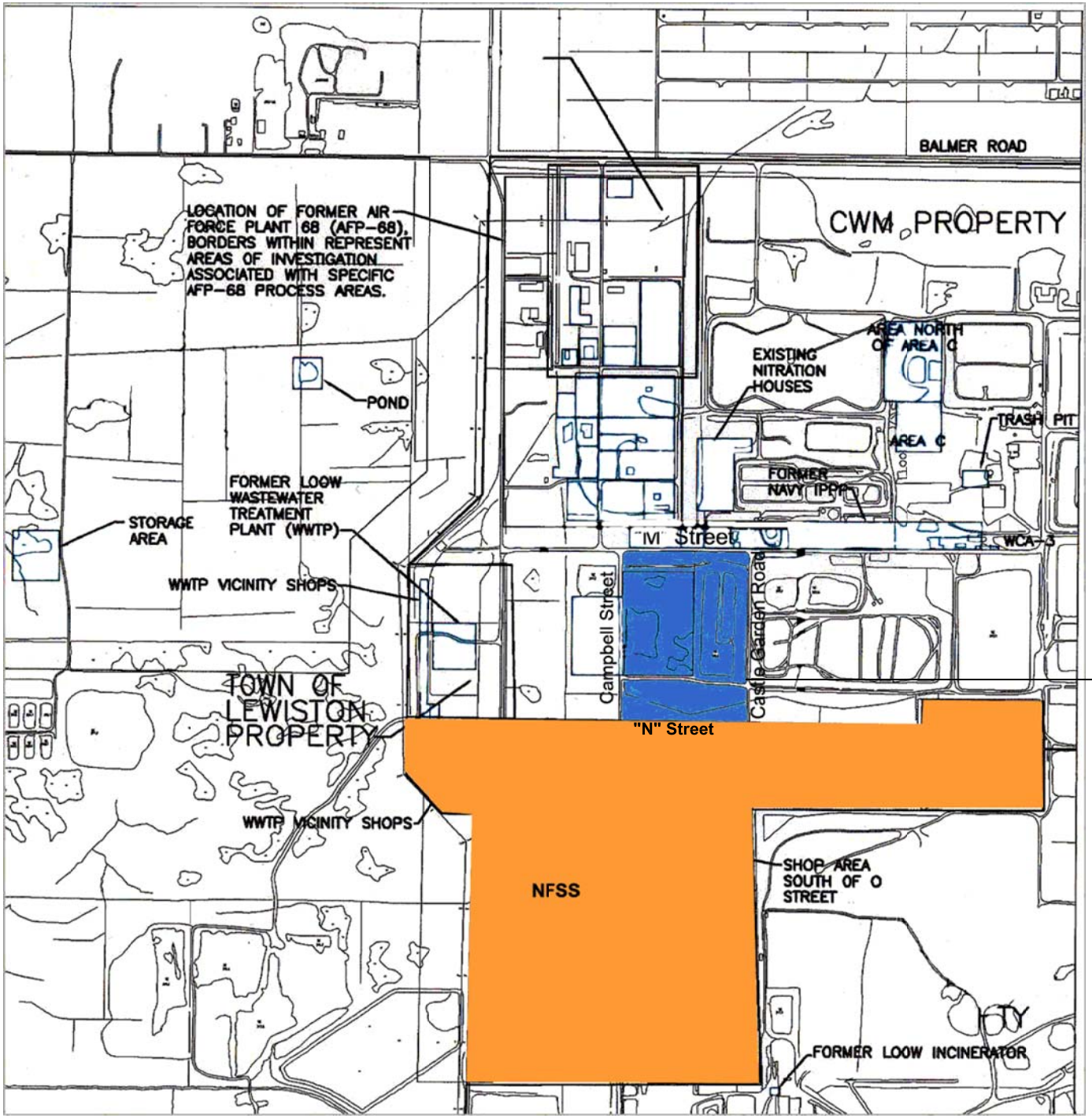
USDOE 1988b. Stannard, J. Newell, October 1988. *Radioactivity and Health: A History*. Prepared by Battelle Memorial Institute for the U.S. Department of Energy. DOE/RL/01830-T59.

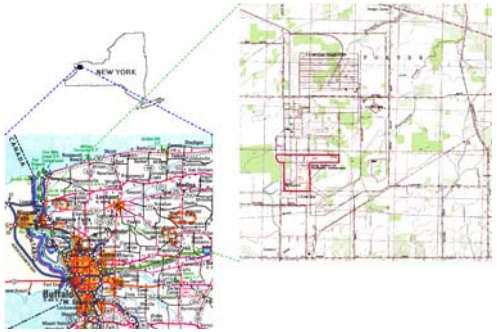
USDOE 1989. Post-Remedial Action Report for the Niagara Falls Storage Site and Vicinity Properties – 1985 and 1986. Prepared by Bechtel National, Inc. for the U.S. Department of Energy, Lewiston, New York, January 1989. DOE/OR/20722-133.

USDOE 1992. Memos re: "Transfer of NFSS Excess Property to Town of Lewiston" to John E. Patterson, Remediation Project Engineer, Division of Off-Site Programs, Office of Eastern Area Programs, EM-421, TREV II, from Ron Kirk, Site Manager, Former Sites Restoration Division, dated August 10, 1992. FUSRAP Document No. 092811/093491. Also memo regarding "same" to J. Fiore, EM-42 from John E. Patterson, dated August 19, 1992. FUSRAP Document No. 093491.

USDOE 2006. Hanford Site Environmental Report for Calendar Year 2005 (Including Some Early 2006 Information), USDOE, Pacific Northwest National Laboratory, 2006.

Figures





Vicinity Property G

NFSS

VPG

0 1200 2400

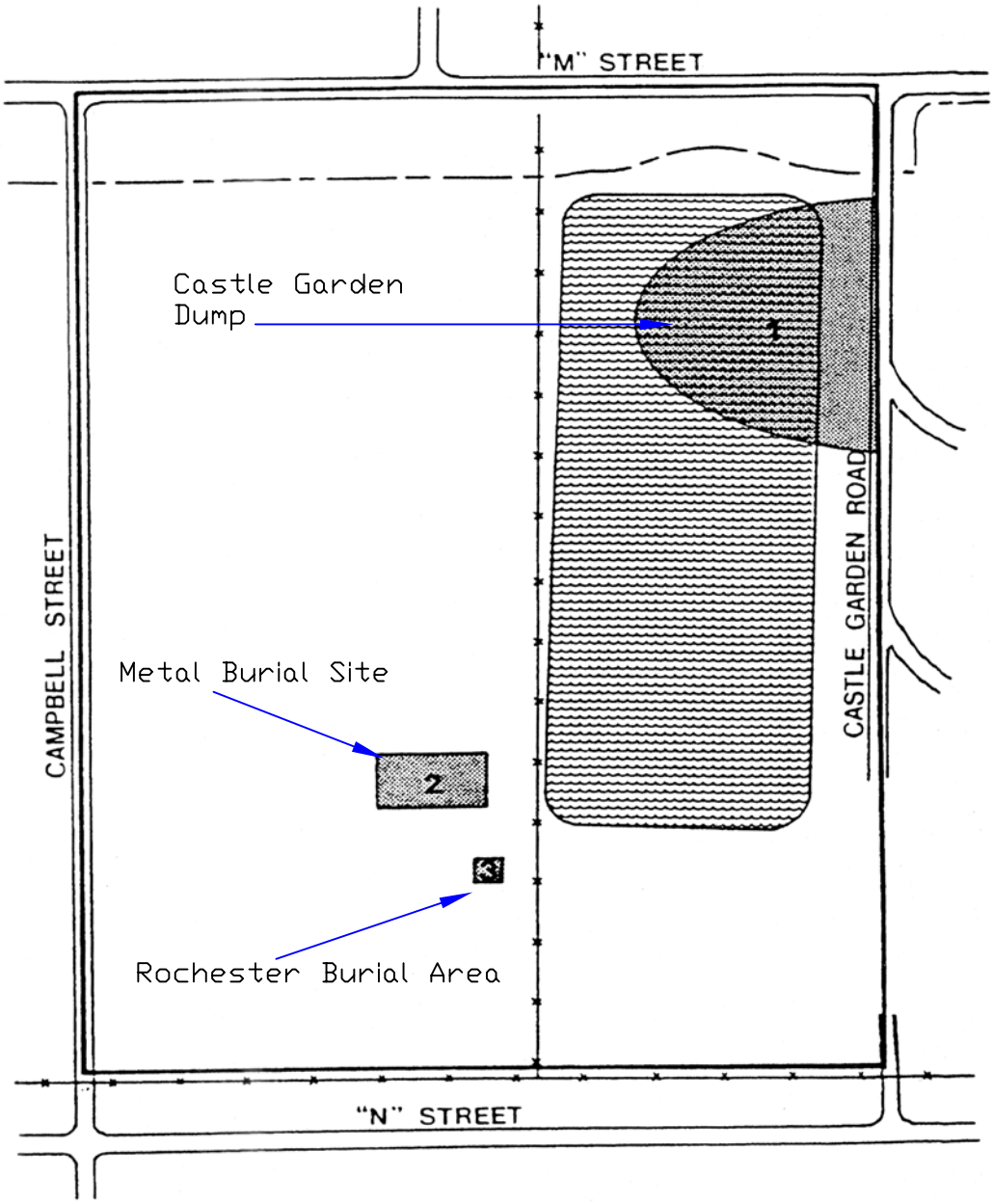
Scale In Feet

Vicinity Property G
Lewiston, New York

Property G - Location Diagram

Drawn By:	Reviewed By:	Date:	Figure No.:
DWC	TL	7/19/2007	1
Checked By:	Approved By:	Project No.:	File Name:
TL	TL	15892	VPGlcn4

Tetra Tech



ROAD
DITCH
FENCE
POND
BOUNDARY LINE

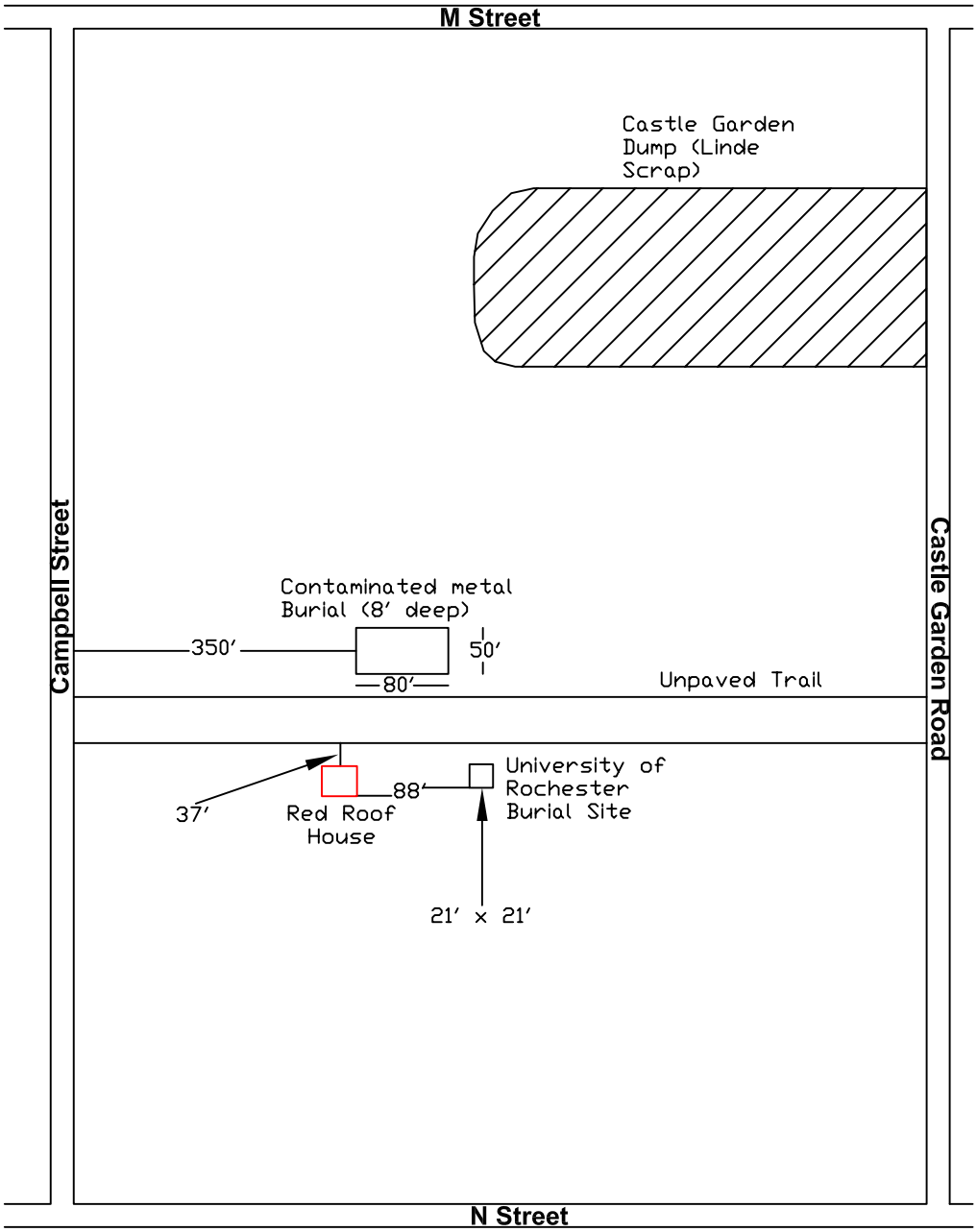
0 232 464
Scale In Feet

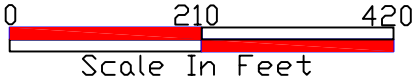
Vicinity Property G
Lewiston, New York

Waste Disposal Areas Vicinity Property G
(Source - USDOE)

Drawn By:	Reviewed By:	Date:	Figure No.:
DWC	TL	7/14/2004	2
Checked By:	**Approved By:**	**Project No.:**	**File Name:**
GCD	TL	15892	Figure 2

Tetra Tech



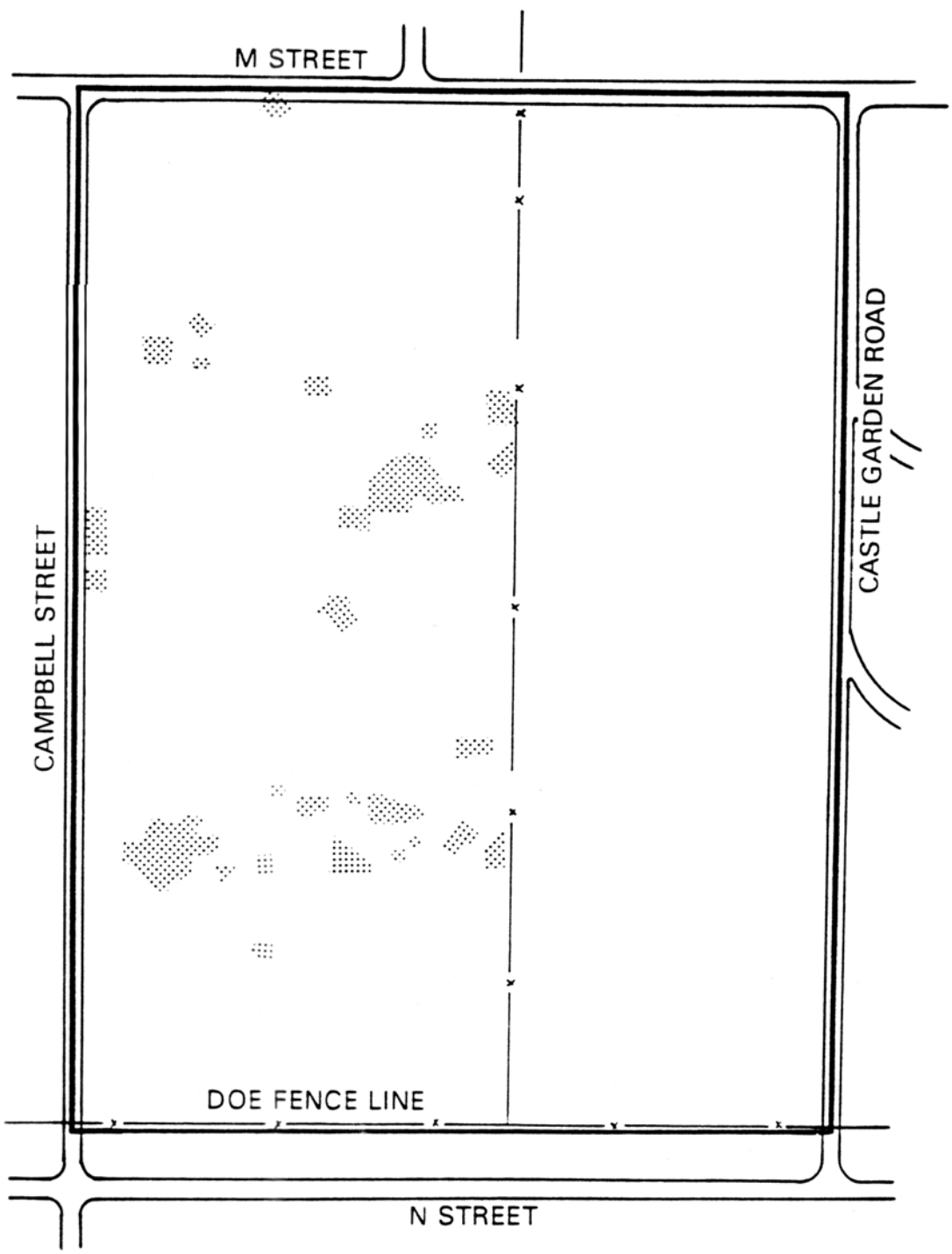


Vinicity Property G
Lewiston, New York

1957 Hooker Electrochemical Company
Chart A-D-353 Rev. 2 (Source - USDOE, 1982, NFSS-301)

Drawn By:	Reviewed By:	Date:	Figure No.:
DWC	TL	7/18/2007	3
Checked By:	**Approved By:**	**Project No.:**	**File Name:**
TL	TL	15892	Fig 3

Tetra Tech



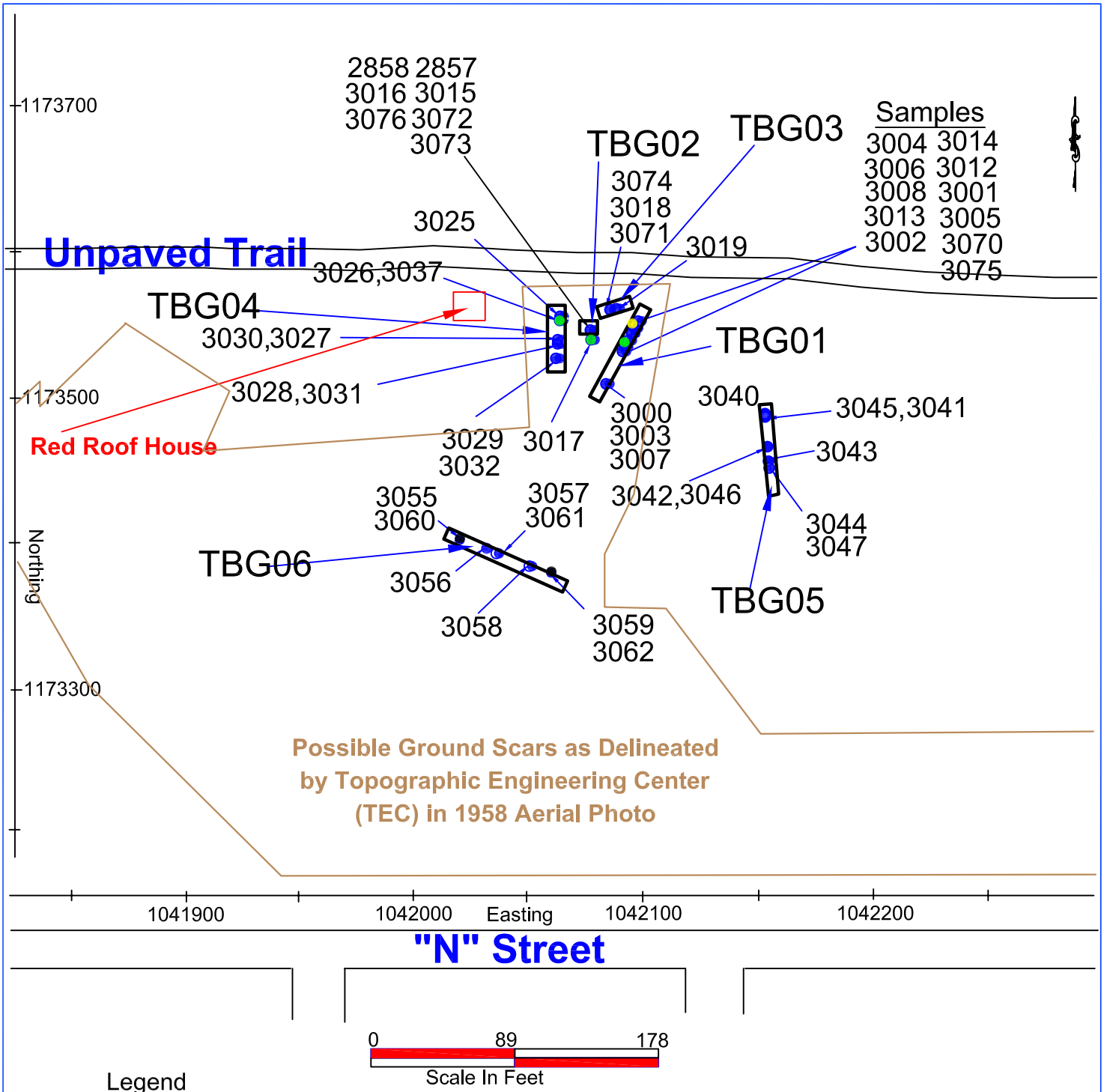
0 193 193
Scale In Feet

Vicinity Property G
Lewiston, New York

Excavated Areas on Property G

Drawn By:	Reviewed By:	Date:	Figure No.:
DWC	TL	7/14/2004	4
Checked By:	**Approved By:**	**Project No.:**	**File Name:**
GCD	TL	15892	Figure 4

Tetra Tech



0 89 178
Scale In Feet

Legend

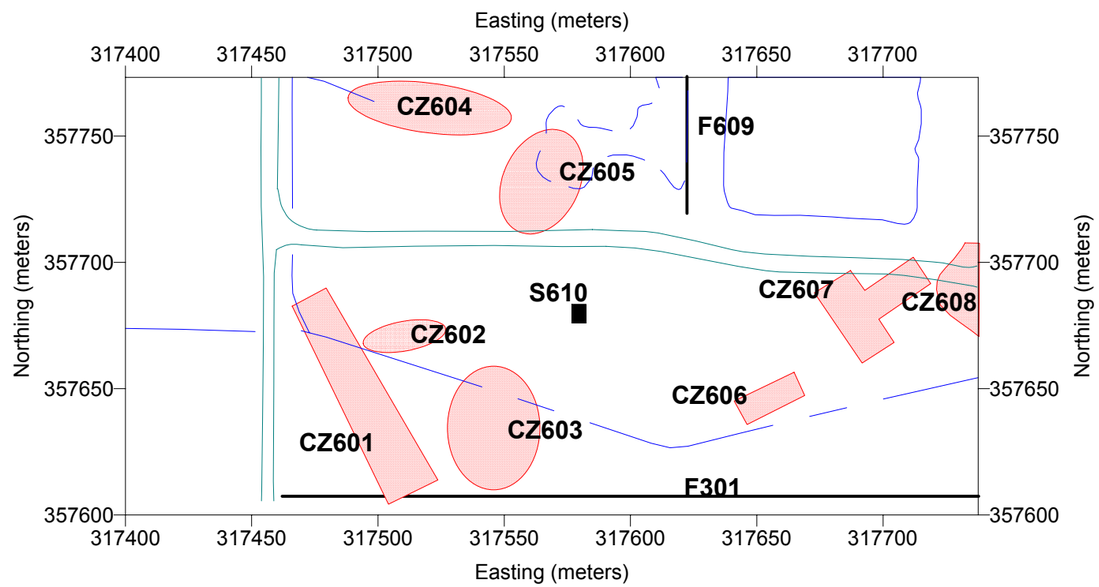
- Trench Sampling Locations (SubSurface) Note: Only 4 digit extension shown on figure.
- Trench Sampling Locations (Animal Carcass) Note: Only 4 digit extension shown on figure.
- Trench Sampling Locations (Surface) Note: Only 4 digit extension shown on figure.
- Trench Sampling Locations (Lab Debris) Note: Only 4 digit extension shown on figure.

TRENCH SAMPLING LOCATIONS

VICINITY PROPERTY G
LEWISTON, NEW YORK

Tetra Tech

PROJECT NO. 15892	FIGURE #: 5
SCALE: Not to Scale	DATE: 7/18/2007
DRAWN BY: DWC	CHECKED BY: TL



Legend

U108	Interpreted Utility (Above- or underground)
D111	Interpreted Drainage (Ditch or Culvert)
F301	Interpreted Fence
S347	Interpreted Structure (Former/Current Building, Slab, Foundation, Pedestal, etc.)
CZ544	Interpreted Conductive Zone
FZ438	Interpreted Ferrous Zone
MZ228	Interpreted Metallic Zone
	Roads

Coordinates are in NAD 83
New York West 1983 (meters)

N

Scale (meters)

0 50 100 150

Niagara Falls Storage Site
Lewiston, New York

Integrated Interpretation
Vicinity Property G

drawn GRAF	checked GRAF	approved GRAF	figure no.
date 1/06/02	date 1/29/02	date 1/06/02	6
job no. 01-1408-08-9812-977		file no. IntegratedPropG.srf	

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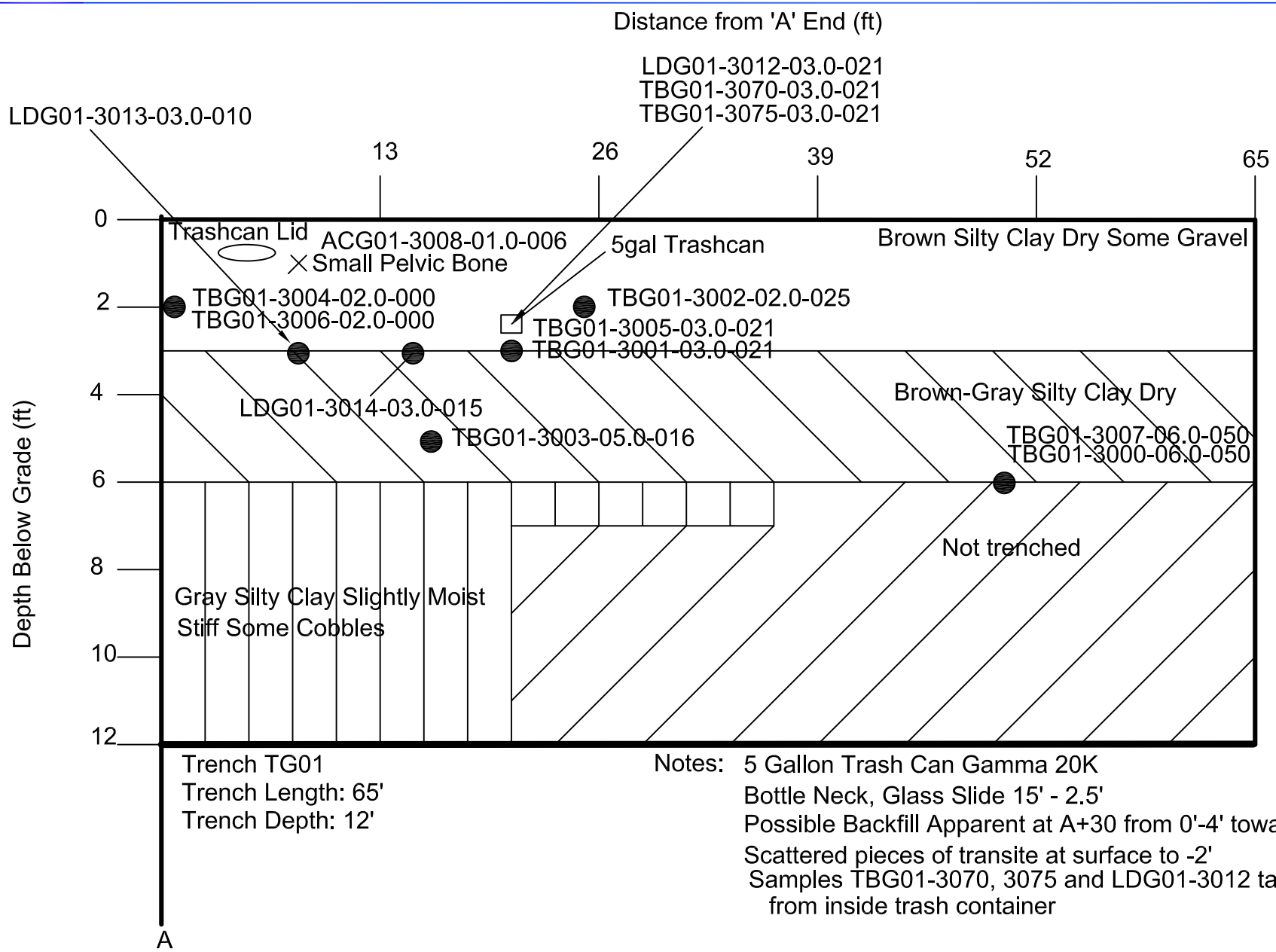


Trench TG01
Trench Length: 65'
Trench Depth: 12'

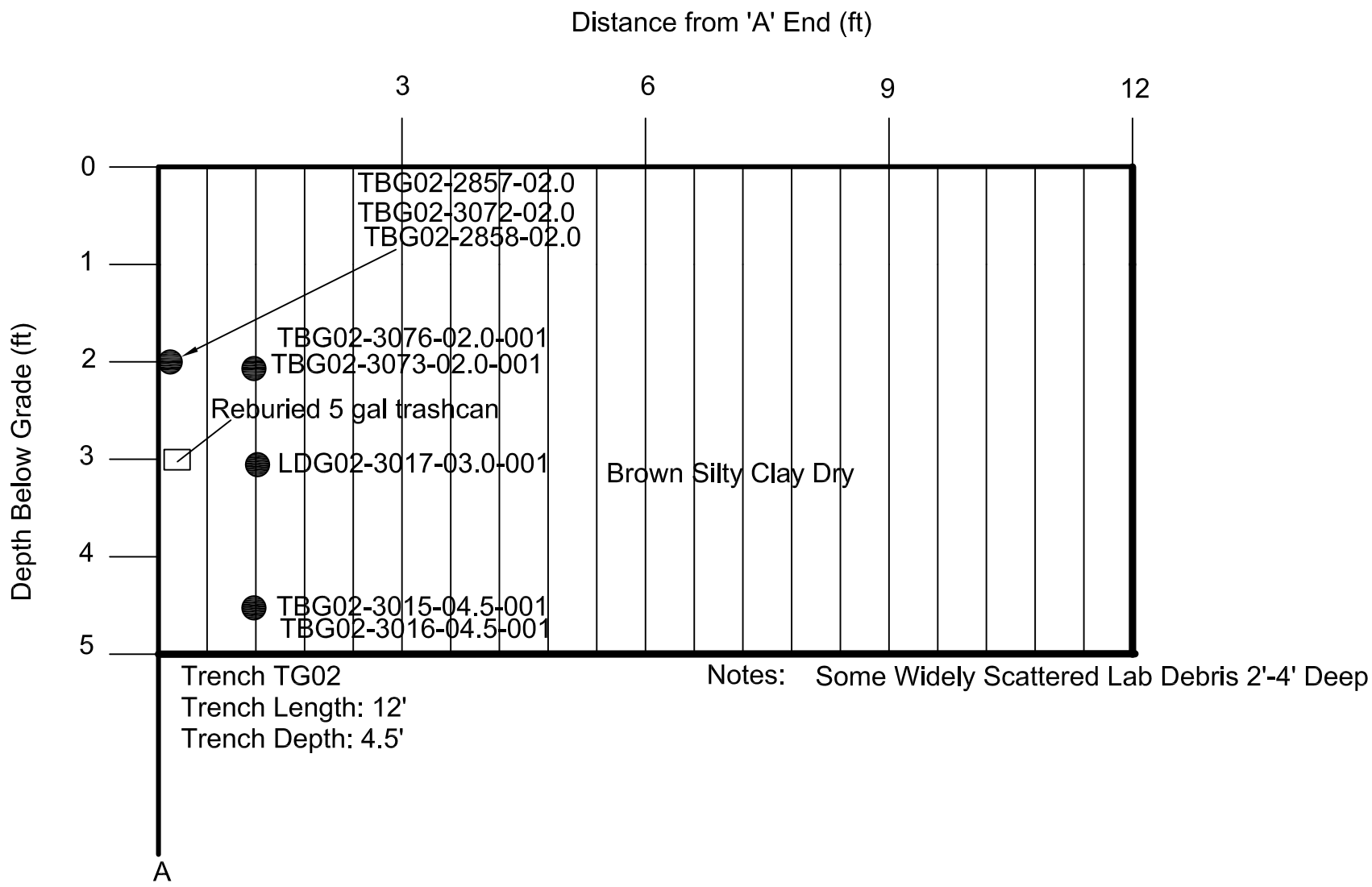
Notes: 5 Gallon Trash Can Gamma 20K
Bottle Neck, Glass Slide 15' - 2.5'
Possible Backfill Apparent at A+30 from 0'-4' toward A end
Scattered pieces of transite at surface to -2'
Samples TBG01-3070, 3075 and LDG01-3012 taken from inside trash container

TRENCH TG01

Vicinity Property G

Tetra Tech

PROJECT NO. 15892	FIGURE #: 7
SCALE: As Shown	DATE: 6/11/2008
DRAWN BY: DWC	CHECKED BY: GCD

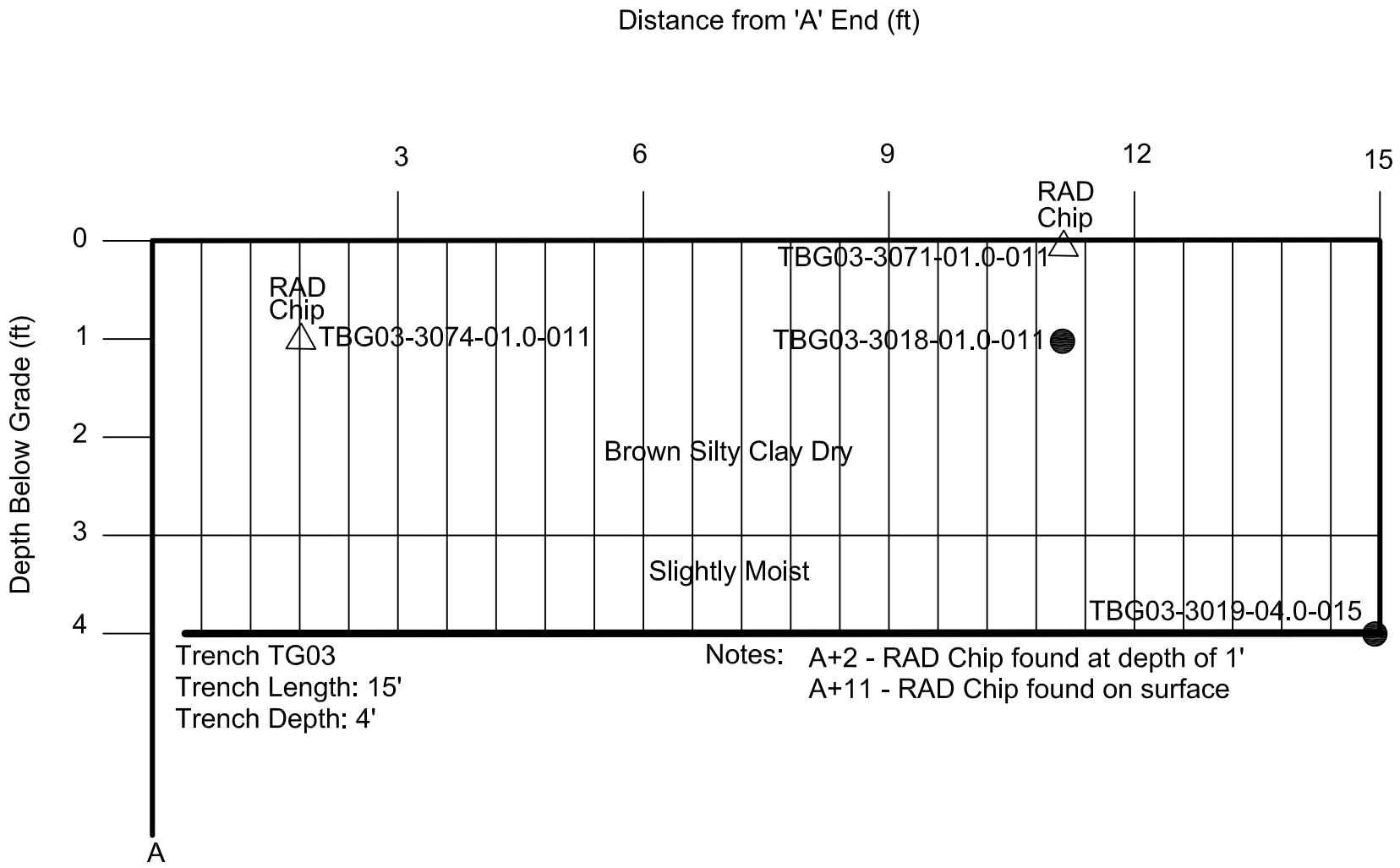


TRENCH TG02

Vicinity Property G

Tetra Tech

PROJECT NO. 15892	FIGURE #: 8
SCALE: As Shown	DATE: 6/11/2008
DRAWN BY: DWC	CHECKED BY: GCD



Trench TG03
Trench Length: 15'
Trench Depth: 4'

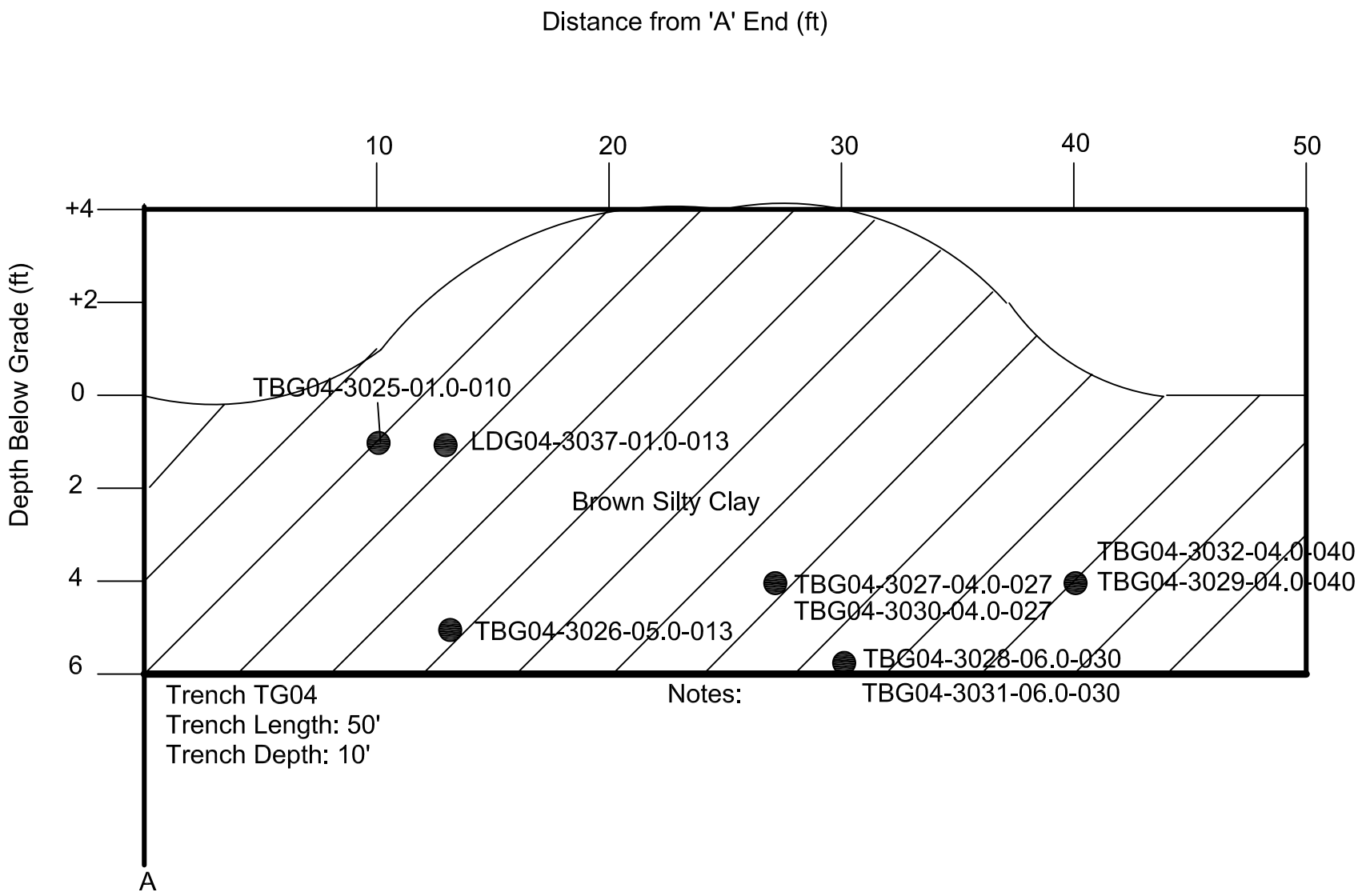
Notes: A+2 - RAD Chip found at depth of 1'
A+11 - RAD Chip found on surface

TRENCH TG03

Vicinity Property G

Tetra Tech

PROJECT NO. 15892	FIGURE #: 9
SCALE: As Shown	DATE: 6/11/2008
DRAWN BY: DWC	CHECKED BY: GCD

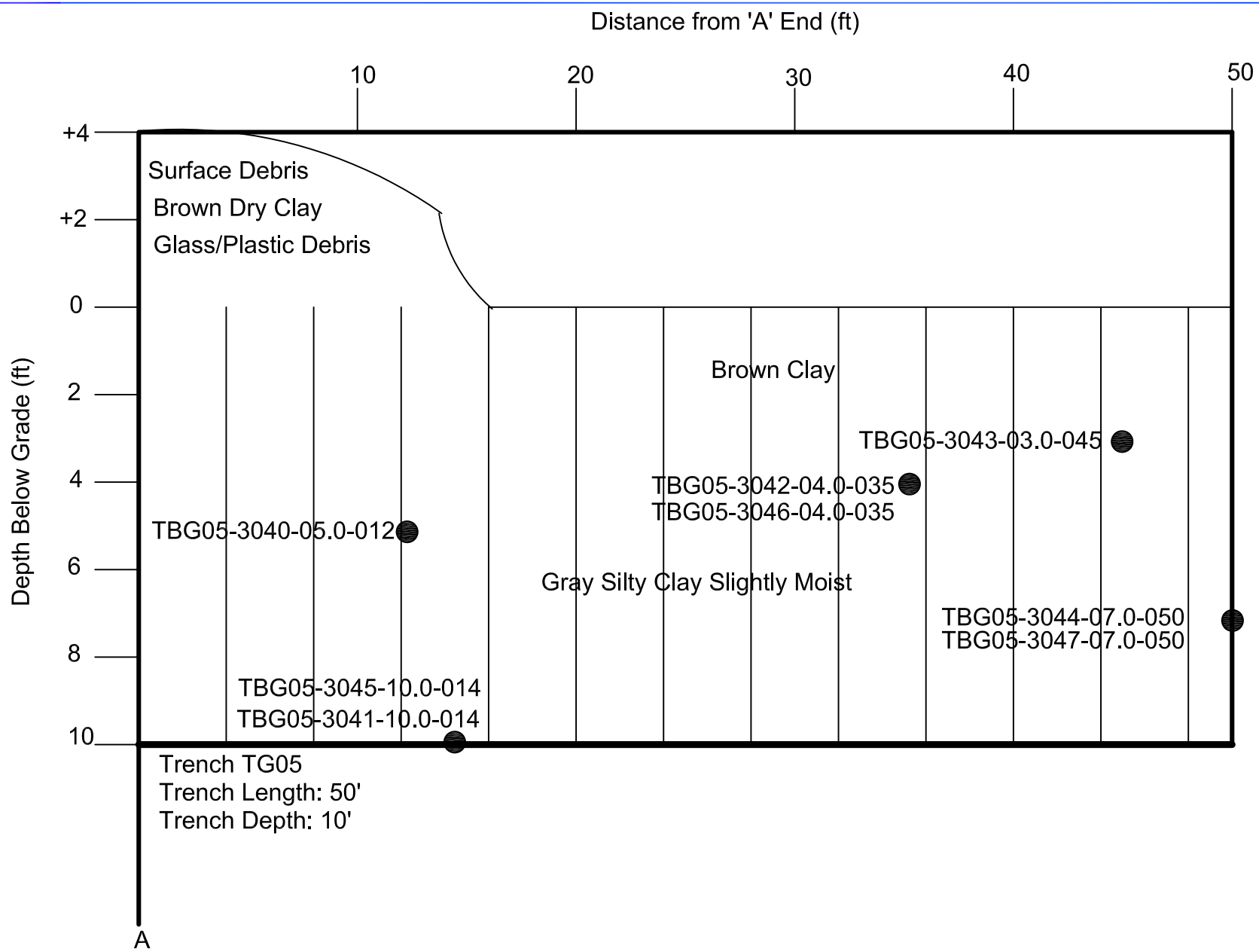


TRENCH TG04

Vicinity Property G

Tetra Tech

PROJECT NO. 15892	FIGURE #: 10
SCALE: As Shown	DATE: 6/11/2008
DRAWN BY: DWC	CHECKED BY: GCD



TRENCH TG05

Vicinity property G

Tetra Tech

PROJECT NO. 15892	FIGURE #: 11
SCALE: As Shown	DATE: 6/11/2008
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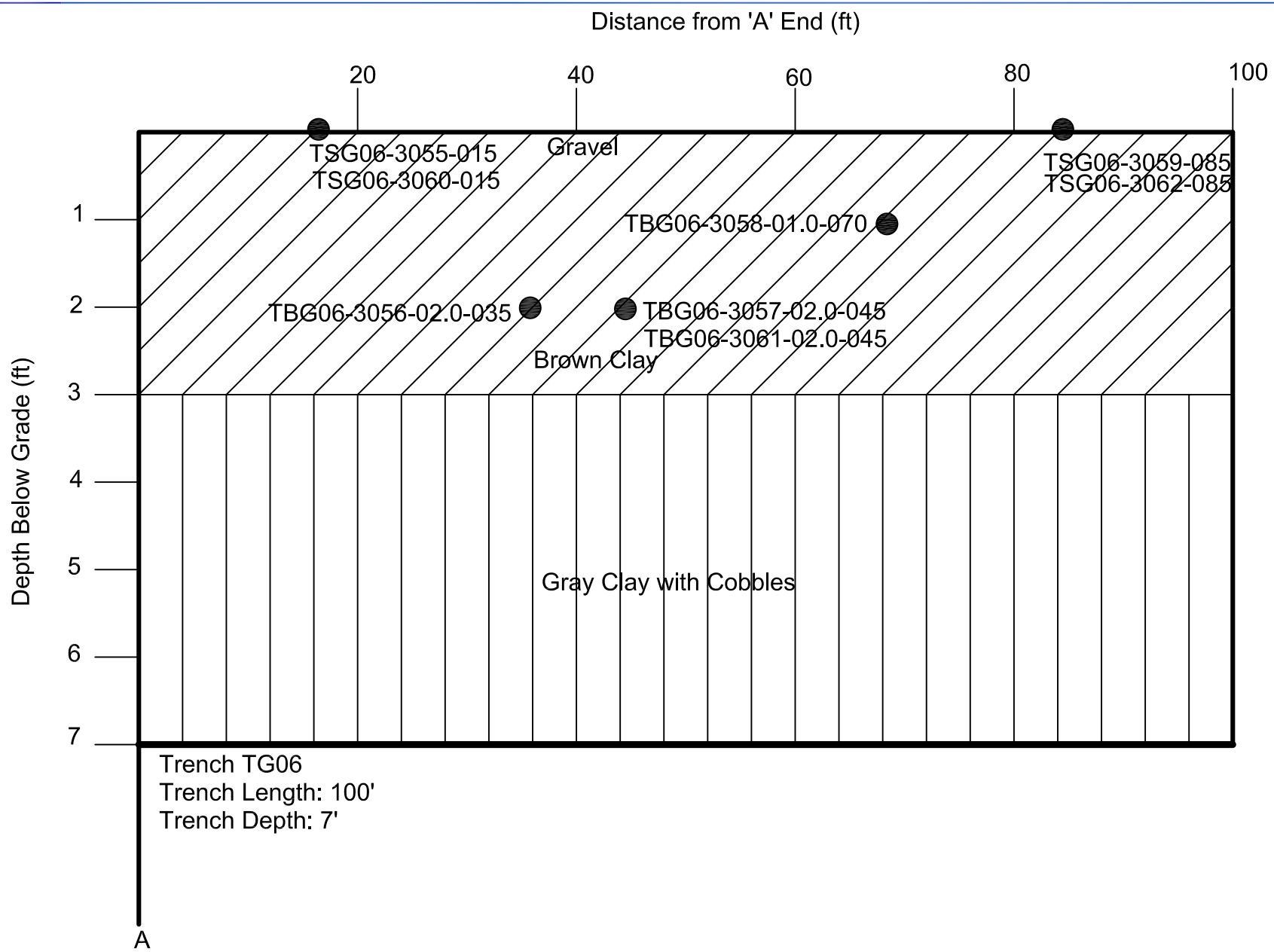
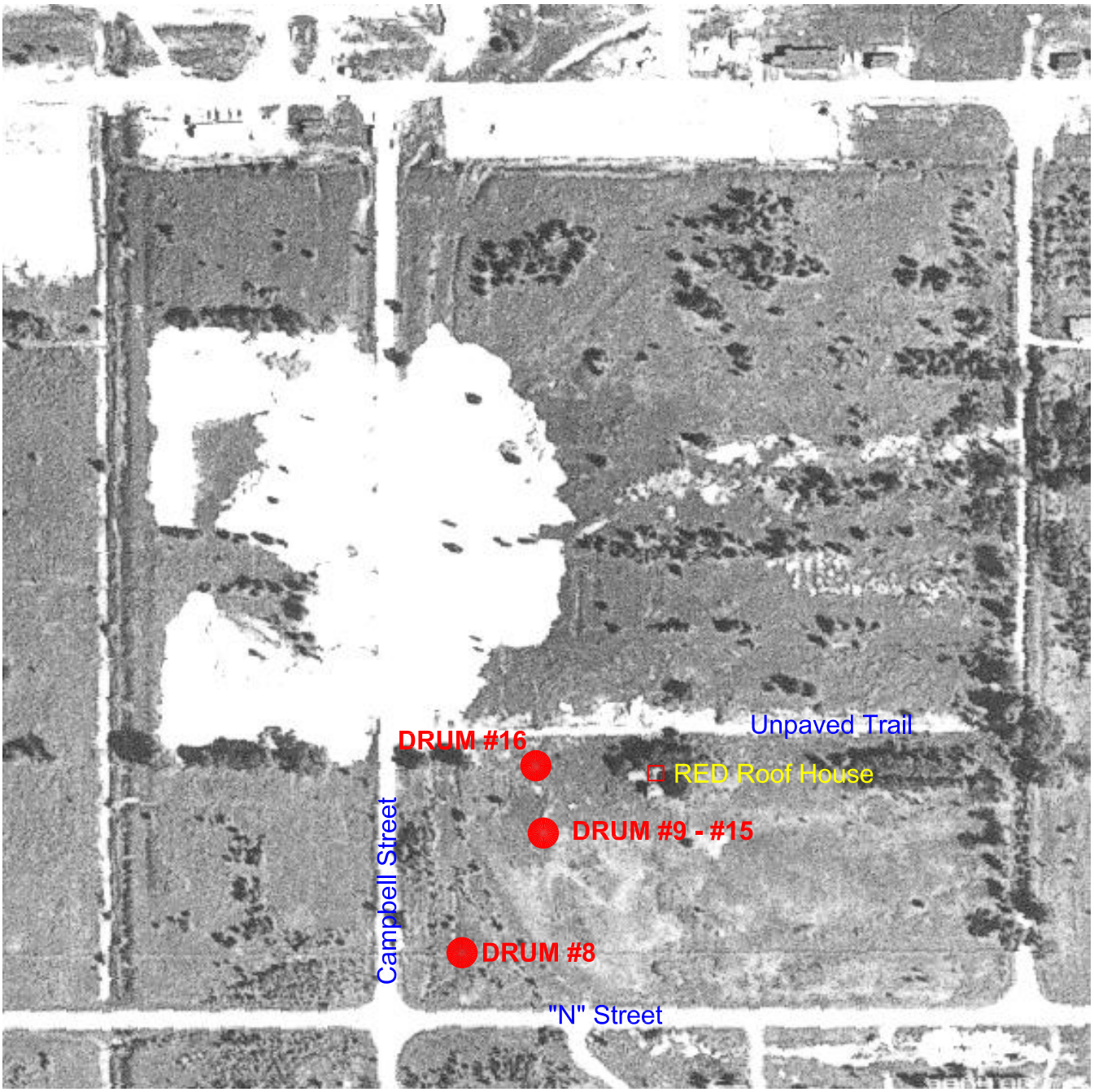


TRENCH TG06

Vicinity Property G

Tetra Tech

PROJECT NO. 15892	FIGURE #: 12
SCALE: As Shown	DATE: 6/11/2008
DRAWN BY: DWC	CHECKED BY: GCD



0 225 450
Scale In Feet

Vicinity Property G
Lewiston, New York

VPG Abandoned Drum Locations

Drawn By:	Reviewed By:	Date:	Figure No.:
DWC	TL	7/18/2007	
Checked By:	**Approved By:**	**Project No.:**	**File Name:**
TL	TL	15892	Figure 13

Tetra Tech

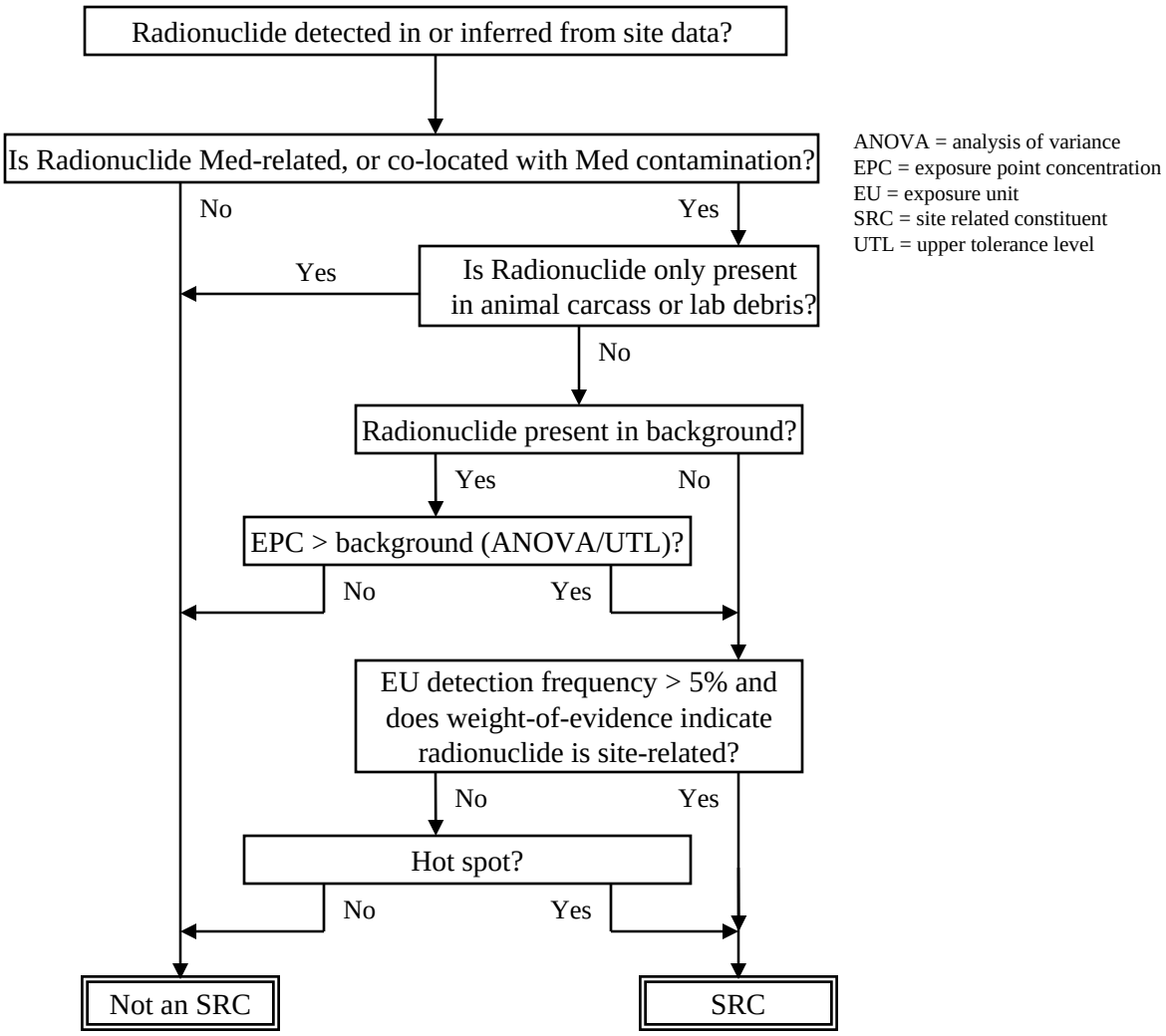


Figure 14. Selection of Radionuclide SRCs

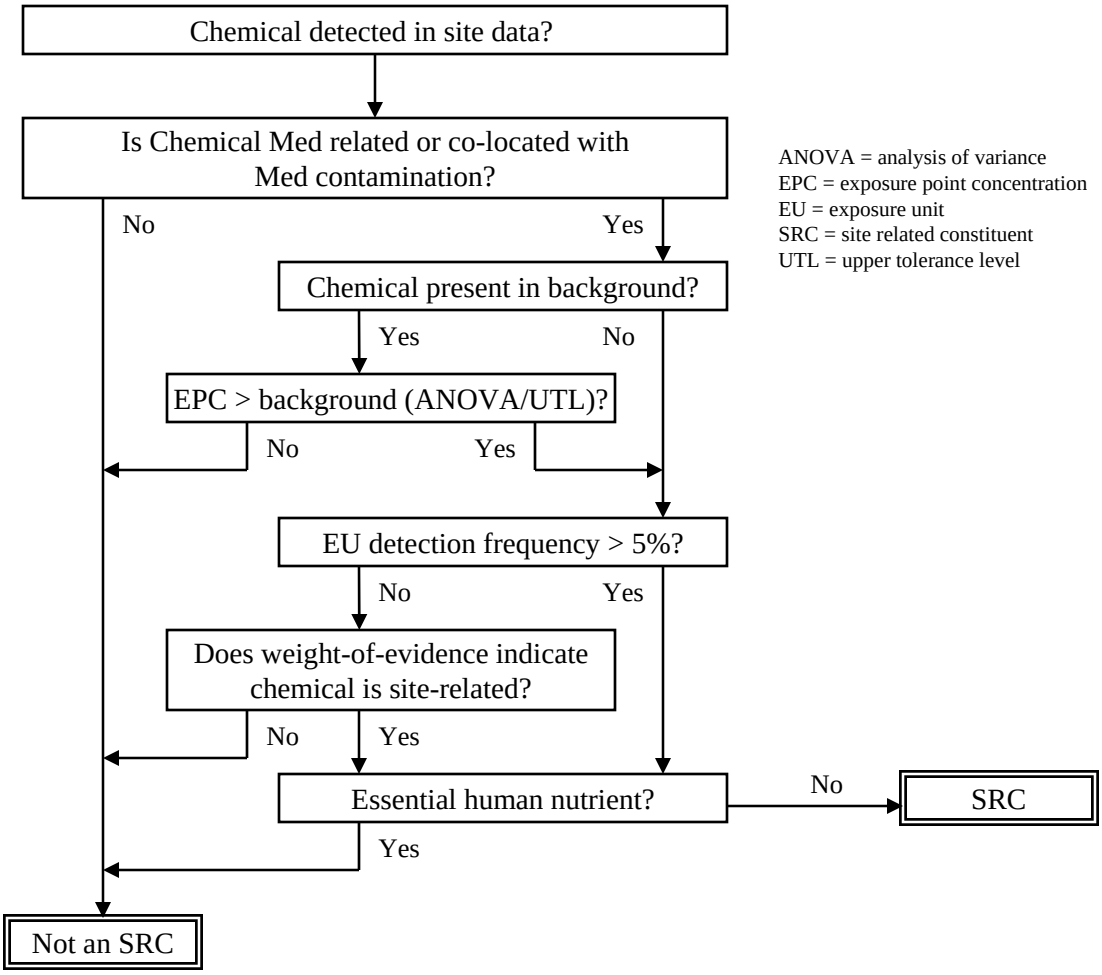
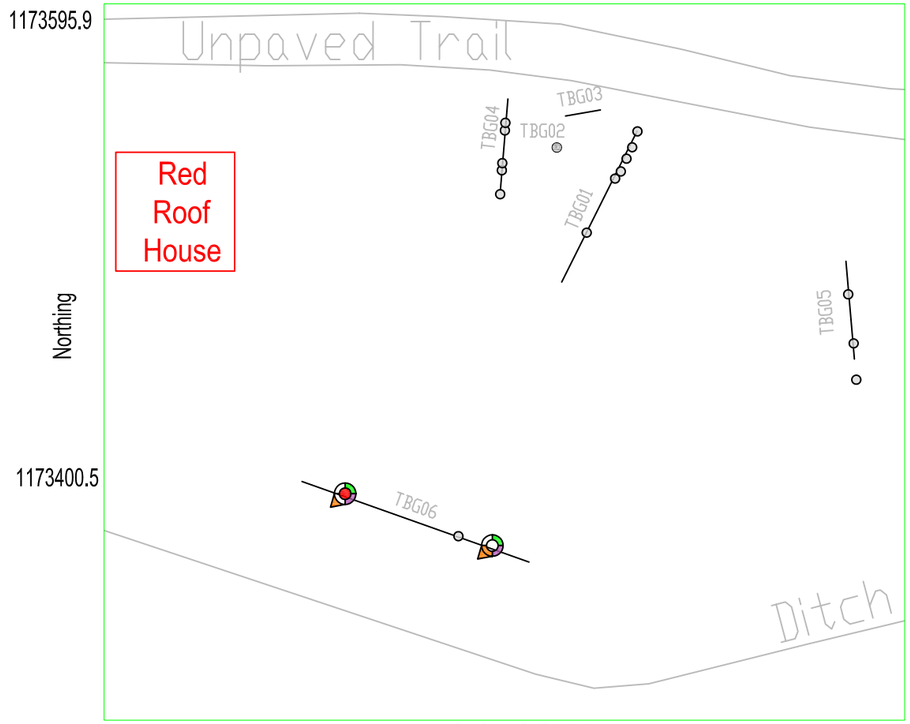
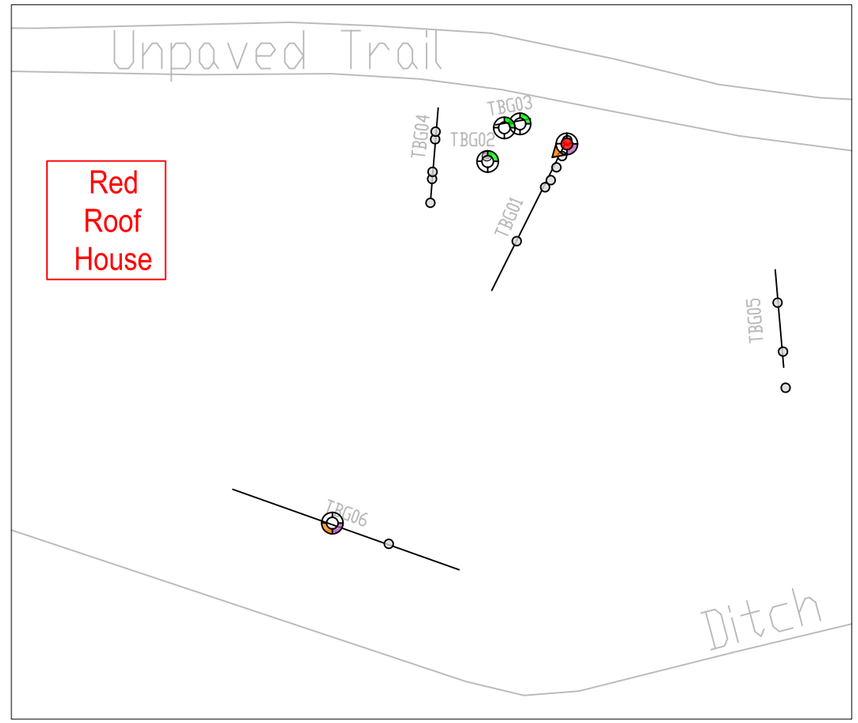


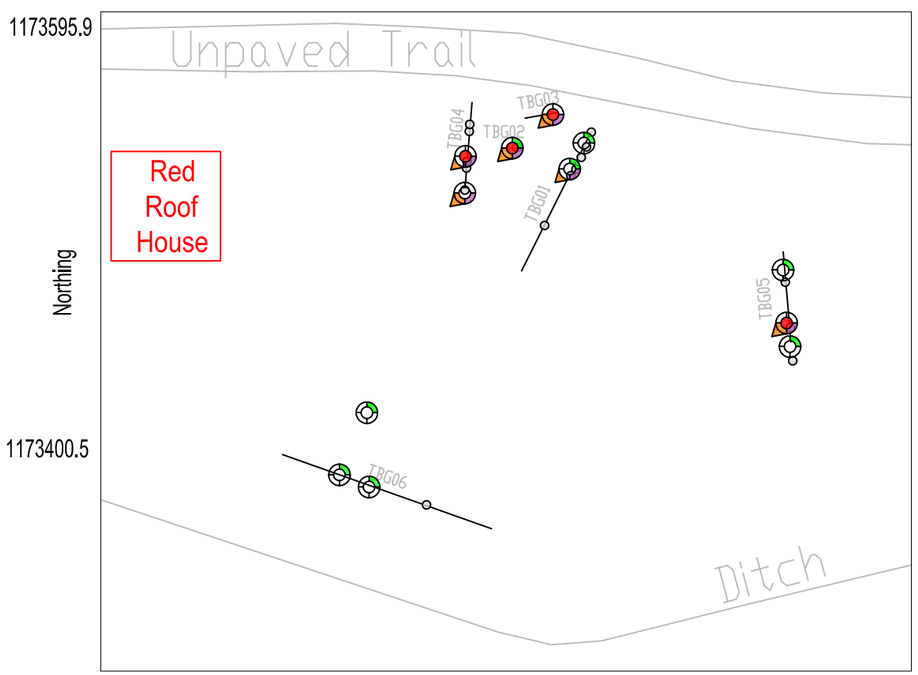
Figure 15. Selection of Chemical SRCs



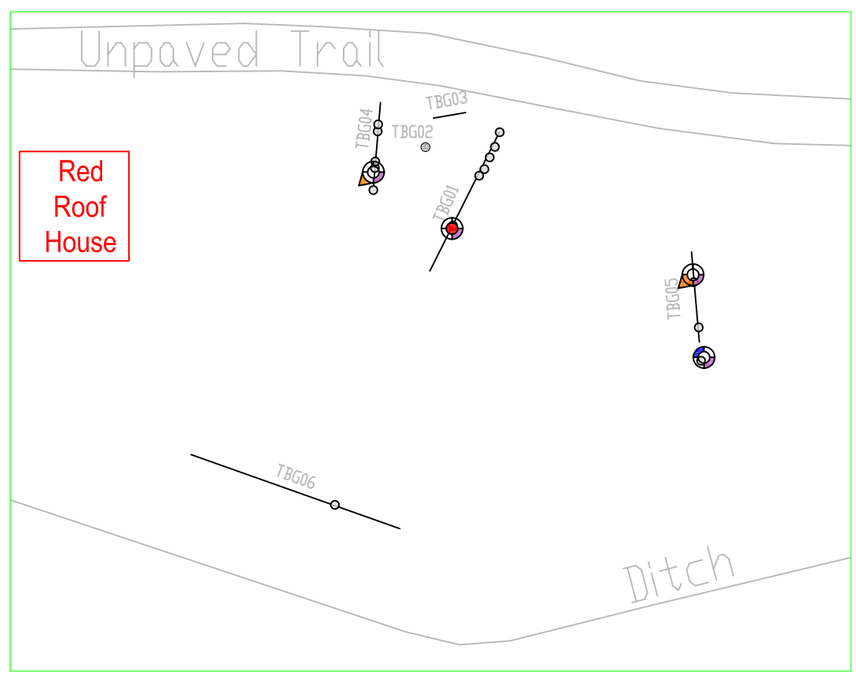
Surface Soil 0-0.5'



Sub-Surface Soil 0.5-2'



Sub-Surface Soil 2-5'

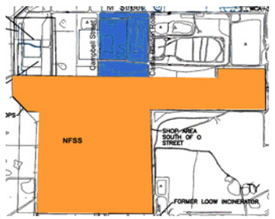


Sub-Surface Soil 5-10'

N

Legend

- No Exceedences
- Metals
- Pesticides
- PCB's
- Radionuclide
- Semi-Volatile Organics
- Volatile Organics



US Army Corps of Engineers
Buffalo District

Tetra Tech Inc.
1634 Eastport Plaza Drive
Collinsville, Illinois 62234
Phone (618)343-2300
Fax (618)345-1281

SRC's in the VPG Area

Drawn By: DWC	Project No.: 15892
Checked By: TL	File Name: VPG-SRC
Date: June 2008	Figure No.: Fig 16

Tables

Table 1

Integrated Interpretation Summary

Vicinity Property G

Easting (m)	Northing (m)	Integrated Designation	Magnetic Anomaly	EM Inphase Anomaly	EM Quadrature Anomaly	Map	Comment	Interpretation
317283.4	357110.0	CZ134		X	X	Southwest	Rectangular anomaly, primarily conductive zone	Terraced area on WCS
317244.1	356799.1	CZ142			A	Southwest	Conductivity only with one ferrous target	Conductive zone
317395.8	357217.7	CZ145		AD	AD	Southwest	Isolated near mapped sanitary utility	Conductive Zone adjacent to Manhole (sanitary)
317375.2	357316.0	CZ146			AL	Southwest	Area of elevated conductivity	Former drainage ditch now in filled
317376.1	357242.0	CZ147			AE	Southwest	Conductive zone adjacent to fence	Fill or increased moisture
317292.8	357231.7	CZ148			AF	Southwest	Large area of elevated conductivity	Conductive zone
317279.7	357303.8	CZ149			AJ	Southwest	Large area of elevated conductivity	Fill materials
317158.8	357251.4	CZ150			AH	Southwest	Large area of elevated conductivity	Fill materials
317164.5	357036.9	CZ152			Z	Southwest	Large area of elevated conductivity	Fill material near utility
317172.0	356836.5	CZ153		C		Southwest	Inphase only	Conductive zone
317377.1	357120.3	CZ154			AC	Southwest	Large area of elevated conductivity	Fill/former lagoon area
317151.9	356865.1	D110	S	I		Southwest	Linear feature	Drainage Pipe/Ditch
317150.9	356930.7	D111		FI	FI	Southwest	Linear Feature in vicinity EM61 anomaly C	Culvert
317150.4	356954.5	D112	W	N	N	Southwest	Linear feature	Coincident with corrugated metal drain pipe
317142.9	357017.3	D113	X	Y	Y	Southwest	Linear feature	Coincident with corrugated metal drain pipe
317154.3	357122.9	D114	Y	AA		Southwest	Linear feature	Coincident with corrugated metal drain pipe
317150.4	357223.3	D115	Z	AG	AG	Southwest	Linear feature	Coincident with corrugated metal drain pipe
317262.0	357262.8	F116	FS	FO	FO	Southwest	Visible on EM and Mag surveys	WCS Fence Line
317133.8	357307.7	F117	FT	FP	FP	Southwest	Visible on EM and Mag surveys	Western Boundary Fence
317290.9	356978.9	FZ121	A	P	P	Southwest	Rectangular anomaly-strong ferrous response	Building 411
317243.7	356959.7	FZ122	C			Southwest	Rectangular anomaly-strong ferrous response	Former structure adjacent to Bldg 411
317214.3	356971.4	FZ127	R			Southwest	Ferrous Target	Metallic debris
317251.4	356917.9	FZ128	G	M	M	Southwest	Ferrous Zone	Former building location
317262.8	356888.0	FZ129	D	K	K	Southwest	Ferrous zone within large metallic zone	Buried buildings
317306.3	356919.3	FZ130	AC			Southwest	Ferrous Target	Ferrous Target
317322.6	357049.7	FZ132	AD			Southwest	Ferrous Target at edge of Metallic Zone	Ferrous Target
317323.4	357080.4	FZ133	AE			Southwest	Ferrous Target	Ferrous Target
317257.2	357042.5	FZ135	Q	V		Southwest	Ferrous Target	Ferrous Target at terraced area
317258.1	357073.5	FZ136	P	W		Southwest	Ferrous Target	Ferrous Target at terraced area
317234.7	357139.0	FZ137	B	AB	AB	Southwest	Large ferrous target	Reported location of buried bulldozer
317365.4	356808.2	FZ139	AH			Southwest	Ferrous Target	Manhole
317408.1	356823.1	FZ140	AI			Southwest	Ferrous Target	Ferrous Target
317239.2	356801.0	FZ141	AG			Southwest	Ferrous Target within an elevated conductive zone	Ferrous Target
317313.3	357329.1	FZ143	AA	AK	AK	Southwest	Ferrous Target	Ferrous Target
317408.9	357223.6	FZ144	N			Southwest	Ferrous Target	Manhole
317227.8	357289.8	FZ151	T	FV	FV	Southwest	Ferrous Zone coincident with Metallic Zone	Former drainage ditch with ferrous targets
317405.3	357117.4	FZ155	AF			Southwest	Ferrous Target	Manhole
317428.8	356786.9	FZ156	FU	F	F	Southwest	Ferrous Target	Ferrous Target
317371.1	357050.4	FZ157	FV	FS	FS	Southwest	Ferrous Target west of S119	Observation Wells OW-10A&B
317213.3	357197.1	FZ159	O			Southwest	Ferrous Target area near former road	Ferrous Target
317225.8	356948.0	MZ123		M	M	Southwest	Visible circular target on EM inphase	Former structure -- tank
317204.9	356924.7	MZ124	AB	FJ	FJ	Southwest	Visible circular target on EM inphase	Former structure -- tank
317243.1	356938.6	MZ125		M	M	Southwest	Contains former structures	Buried buildings and structures

Table 1

Integrated Interpretation Summary

Vicinity Property G

Easting (m)	Northing (m)	Integrated Designation	Magnetic Anomaly	EM Inphase Anomaly	EM Quadrature Anomaly	Map	Comment	Interpretation
317216.0	356969.5	MZ126		O	O	Southwest	Large metallic anomaly	Metallic debris
317263.7	356904.9	MZ129		L	L	Southwest	Large metallic anomaly	Building rubble
317332.4	357033.1	MZ131	FW	U		Southwest	Rectangular anomaly	Culvert/Large Vault within drainage ditch
317361.1	357180.8	MZ138		FQ	FQ	Southwest	EM anomaly	Buried Culvert
317413.1	357188.0	MZ158		FR	FR	Southwest	Metallic Target north of east-west drainage	Buried Metal Target
317229.5	357333.8	MZ161		FN	FN	Southwest	Isolated anomaly	Metallic Target
317423.9	357044.4	S118	L	S	S	Southwest	Coincident with trailers	Trailers
317395.8	357058.5	S119	K	T	T	Southwest	Coincident with garage	Garage
317402.3	357022.9	S120	V	R	R	Southwest	Former building location	Decon Pad
317402.3	356973.3	U100	E	B	B	Southwest	Linear feature coincident with mapped water utility	Water Utility
317319.0	356837.5	U101	F	D	D	Southwest	Linear feature coincident with mapped water utility	Water Utility
317387.3	356836.5	U102	U	E	E	Southwest	Coincident with roadway	Utility
317421.3	356861.0	U103		G		Southwest	Linear feature	Utility
317384.6	356913.6	U104		FL	FL	Southwest	Linear Feature	Water Utility
317378.0	356986.4	U105, U106	M	Q	Q	Southwest	Linear feature coincident with mapped water utility	Water Utility
317391.0	357039.8	U107		FM	FM	Southwest	Linear Feature	Utility
317439.8	357268.2	U108	J	H	H	Southwest	Linear feature	Water Utility
317152.3	356889.9	U109		J	J	Southwest	Linear feature	Culvert/Drainage pipe
317291.1	356837.3	U160		FK		Southwest	Linear conductivity anomaly	Possible utility not previously mapped
317178.9	357304.2	U222	H	AI	AI	Southwest	Wide linear feature	Utility along edge of roadway
317280.2	357365.1	CZ201			AN	Northwest	Conductive zone	Fill materials
317164.7	357447.8	CZ206	AO,AN	AS	AS	Northwest	High conductivity with scattered ferrous objects	Conductive zone with some metal
317051.6	357509.8	CZ208			AU	Northwest	Broad area of high conductivity	Former Drainage that has been filled
317024.6	357510.4	CZ213			AX	Northwest	High conductivity	Conductive zone
317014.9	357550.0	CZ215			AZ	Northwest	High conductivity	Conductive zone
317099.0	357541.1	CZ217			BB, BC	Northwest	Broad area of high conductivity	Building/structure footers/foundations
317221.4	357488.2	CZ223			BE, BF	Northwest	Broad area of high conductivity near drainage ditch	Fill materials
317276.8	357514.4	CZ224			BG	Northwest	Isolated high conductivity	Conductive zone/Fill material
317377.3	357509.8	CZ233		BJ	BJ	Northwest	Mostly quadrature, some inphase - adj to feature in Northcentral	Conductive zone with some metal
317242.2	357426.0	D204		AR, AP	AR, AQ	Northwest	Linear	Drainage Pipe/Ditch
317002.0	357578.5	D216	AZ	AZ		Northwest	Linear ferrous feature contained within conductive zone AZ	Culvert
317090.0	357403.0	F117				Northwest	End of survey area	Fence
317250.0	357605.0	F301				Northwest	End of survey area	Fence
317025.2	357481.1	FZ210	AV	AW	AW	Northwest	Isolated anomaly	Ferrous Target
317056.2	357464.8	FZ211	AU			Northwest	Isolated anomaly	Ferrous Target
317123.1	357424.6	FZ212	AT			Northwest	Isolated anomaly	Ferrous Target
317071.6	357595.9	FZ218	AL	FW	FW	Northwest	Metallic zone, ferrous	Ferrous Target
317118.4	357549.1	FZ219	AM			Northwest	Metallic zone, no structure evident on air photo	Ferrous Target adjacent to building foundation
317117.8	357511.6	FZ220	AW			Northwest	Isolated anomaly within conductive zone	Ferrous Target
317137.8	357534.4	FZ221	AX			Northwest	Isolated anomaly	Ferrous Target
317321.2	357517.0	FZ227	BB			Northwest	Isolated anomaly	Ferrous Target
317319.8	357565.2	FZ229	AR			Northwest	Isolated anomaly	Ferrous Target
317158.4	357374.8	MZ200		AM	AM	Northwest	Rectangular anomaly non-ferrous	Metallic Zone
317299.6	357397.5	MZ202	AS	AO		Northwest	Rectangular anomaly	Metallic zone with monitor wells nearby
317086.3	357468.8	MZ207		AT		Northwest	Metallic zone with scattered ferrous	Metallic zone with ferrous and non-ferrous
317051.6	357531.3	MZ207	AY	BA		Northwest	Metallic zone, scattered	Non-ferrous and ferrous targets
317035.9	357484.9	MZ209		AV		Northwest	Isolated anomaly with surface debris adjacent	Surface debris
317003.9	357540.9	MZ214		AY	AY	Northwest	Isolated	Metallic zone, non-ferrous
317298.5	357571.3	MZ228		BH		Northwest	Isolated anomaly at the end of storm utility	Non-ferrous target
317323.1	357575.1	MZ230		BI		Northwest	Metallic zone at ditch along road	Suspected metallic material or pipes at ditch

Table 1

Integrated Interpretation Summary

Vicinity Property G

Easting (m)	Northing (m)	Integrated Designation	Magnetic Anomaly	EM Inphase Anomaly	EM Quadrature Anomaly	Map	Comment	Interpretation
317338.6	357583.9	S231	AQ			Northwest	No confirmation on air photo, but utility connects to	Probable structure
317327.2	357412.0	U203	BA	AP, AQ, AR	AQ, AR	Northwest	Linear	Utility
317177.4	357532.8	U222	AJ	BD	BD	Northwest	Linear Utility	
317231.5	357539.1	U225	AK			Northwest	Linear	Utility
317231.5	357539.1	U226	AP			Northwest	Linear	Utility
317379.0	357565.5	U232	BC	BK	BK	Northwest	Linear feature	Storm utility
317377.4	357579.9	U300				Northwest	Linear	Utility
317373.4	357428.2	U305	BA	AP, AR	AQ, AR	Northwest	Linear	Near storm utility
317405.8	357517.9	CZ233		BM	BM	Northcentral	Adjacent to feature within northwest	Conductive zone
317483.5	357512.8	CZ309			BO	Northcentral	Slightly elevated conductivity wet area	Conductive zone
317605.2	357540.1	CZ316			BV	Northcentral	Conductivity near utility juncture	Conductive zone
317738.3	357382.6	CZ323			CI	Northcentral	Elevated conductivity rail ties in vicinity	Conductive zone
317640.5	357546.3	CZ331			BY	Northcentral	Isolated conductivity anomaly centered in hummocky area	Conductive zone
317563.3	357606.8	F301				Northcentral	Linear Feature	Fence
317518.8	357545.9	F512	BD	BP	BP	Northcentral	Linear feature	Fence
317427.5	357553.3	FZ303	BU			Northcentral	Isolated anomaly	Ferrous Target
317431.5	357544.6	FZ304	BV			Northcentral	Isolated anomaly	Ferrous Target
317429.5	357438.1	FZ306	BW			Northcentral	Isolated anomaly	Ferrous Target/Manhole cover
317442.2	357416.8	FZ307	BX			Northcentral	Conductive zone	Ferrous Target/Manhole cover
317490.4	357586.7	FZ308	BT			Northcentral	Isolated anomaly	Ferrous Target
317540.5	357526.5	FZ310	BI, BI-2	FX	FX	Northcentral	Many targets surrounding structures, rubble	Metallic zone with ferrous targets/rubble
317486.4	357466.8	FZ311	BI-3	BQ	BQ	Northcentral	Rectangular anomaly	Ferrous zone south of BI-3
317513.1	357400.0	FZ313	BY	FY		Northcentral	Isolated anomaly	Ferrous Target
317596.1	357592.8	FZ315	BS			Northcentral	Isolated anomaly	Ferrous Target
317552.2	357380.2	FZ318	BE, BF	BT	BT	Northcentral	Broad area of elevated inphase and mag	Ferrous Target
317602.1	357395.4	FZ319	BZ			Northcentral	Isolated anomaly	Ferrous Target
317721.3	357369.3	FZ322	CA			Northcentral	Isolated anomaly	Ferrous Target
317716.6	357404.1	FZ324	BH			Northcentral	Small, rectangular anomaly	Ferrous Target, possible culvert
317759.4	357548.6	FZ328	BJ	CF, CG, CH	CF, CG, CH	Northcentral	Ferrous metallic zone surrounding structures, surface debris	Metallic zone with ferrous debris
317626.2	357592.0	FZ332	BR			Northcentral	Isolated anomaly	Ferrous Target
317700.5	357580.7	FZ333	BQ			Northcentral	Isolated anomaly	Ferrous Target
317711.8	357593.4	FZ334	BP			Northcentral	Small, rectangular anomaly	Ferrous Target
317723.2	357584.7	FZ335	CF			Northcentral	Isolated anomaly	Ferrous Target
317744.0	357588.7	FZ336	CE			Northcentral	Isolated anomaly	Ferrous Target
317802.2	357586.0	FZ344	CD			Northcentral	Isolated anomaly	Ferrous Target
317861.1	357539.2	FZ345	BN, BM			Northcentral	Small, rectangular anomaly	Ferrous Target
317919.3	357477.6	FZ349	CC			Northcentral	Isolated anomaly	Ferrous Target
317871.1	357465.6	FZ350	BK			Northcentral	Small, rectangular anomaly	Ferrous Target
317564.9	357473.2	MZ317		BU	BU	Northcentral	Metallic zone	Metallic zone with ferrous and non-ferrous
317658.4	357394.1	MZ321		CB	CB	Northcentral	Area of inhomogeneous material	Conductive zone
317919.7	357449.2	MZ353	CB	CT	CT	Northcentral	Rectangular anomaly adjacent to a utility	Conductive zone with some ferrous material
317486.4	357466.8	S311	BI-3	BQ	BQ	Northcentral	Rectangular anomaly	Structure
317474.9	357360.3	S314	BO	BS	BS	Northcentral	Rectangular anomaly	Structure
317644.8	357358.1	S320	BG	CA	CA	Northcentral	Rectangular anomaly	Structure
317618.1	357445.9	S326	BJ	BW	BW	Northcentral	Rectangular anomaly	Structure
317682.2	357448.8	S327	BJ	CD	CD	Northcentral	Appears coincident with saddles on air photo	Structure
317667.1	357502.0	S329	BJ	BZ	BZ	Northcentral	Rectangular anomaly	Structure
317694.3	357498.9	S330	BJ	CE	CE	Northcentral	Appears coincident with saddles on air photo	Structure
317716.7	357493.4	S337	BJ	CF	CF	Northcentral	Rectangular anomaly	Structure
317740.5	357481.9	S338	BJ	CH	CH	Northcentral	Rectangular anomaly, adjacent to building	Structure

Table 1

Integrated Interpretation Summary

Vicinity Property G

Easting (m)	Northing (m)	Integrated Designation	Magnetic Anomaly	EM Inphase Anomaly	EM Quadrature Anomaly	Map	Comment	Interpretation
317764.9	357502.8	S339	BJ	CK	CK	Northcentral	Appears coincident with concrete structures	Structure
317785.1	357499.2	S340	BJ	CL	CL	Northcentral	Appears coincident with concrete structures	Structure
317808.1	357497.7	S341	BJ	CM	CM	Northcentral	Appears coincident with concrete structures	Structure
317790.1	357450.2	S342	BJ	CJ	CJ	Northcentral	Appears coincident with saddles on air photo	Structure
317898.1	357547.3	S346	BL	CV	CV	Northcentral	Faint outline on air photo	Structure
317859.7	357497.7	S347	BJ	CO, CP	CO, CP	Northcentral	Rectangular anomaly	Structure
317916.8	357503.5	S348		CU	CU	Northcentral	Rectangular anomaly	Structure
317631.0	357500.0	S355	BJ	BX	BX	Northcentral	Rectangular anomaly	Former building location
317441.1	357478.3	U108		BN	BN	Northcentral	Linear Feature	Water Utility
317674.3	357412.0	U203		CC	CC	Northcentral	Linear	Water Utility
317415.8	357565.5	U300	BC	BL		Northcentral	Linear	Storm Utility
317484.3	357425.7	U305		BR	BR	Northcentral	Linear feature-sharpest on Quad Phase	Utility
317771.4	357584.1	U343		CN	CN	Northcentral	Linear feature	Utility - Possible water - distance away
317853.1	357462.0	U351		CQ	CQ	Northcentral	Isolated Linear features adjacent to a utility	Water Utility
317893.0	357461.7	U352		CS	CS	Northcentral	Linear Feature	Utility
317853.1	357420.3	U354		CR	CR	Northcentral	Isolated features coincident with trend of CQ	Utility
317990.0	357560.8	CZ404			DE	Northeast	Inhomogeneous material adjacent to pipeline	Conductive zone
318024.3	357434.8	CZ415		CY	CY	Northeast	Isolated conductivity along pipeline	Conductive zone
318142.3	357439.2	CZ418			DA	Northeast	Elevated Conductivity	Conductive zone
318157.1	357603.9	CZ428			DJ	Northeast	Elevated near pipeline juncture, decrease away	Conductive zone
318272.6	357590.2	CZ434			DO	Northeast	Elevated near pipeline juncture, decrease away	Conductive zone
318277.5	357541.7	CZ436			DN	Northeast	Isolated anomaly	Conductive zone
318085.4	357556.0	D405		DF		Northeast	Appears coincident with drainage way on photo	Drainage ditch with some metal
318418.0	357567.8	F400				Northeast	Linear feature	Fence
318243.4	357409.9	F401				Northeast	Linear feature	Fence
318134.4	357519.4	F423	CH	DH	DH	Northeast	Linear feature	Unmapped Utility
318074.7	357547.0	FZ406	CL			Northeast	Isolated anomaly	Ferrous Target
318006.5	357508.2	FZ407	DH			Northeast	Isolated anomaly	Ferrous Target
318075.4	357520.3	FZ410	DI			Northeast	Isolated anomaly	Ferrous Target
318070.1	357468.1	FZ411	CO			Northeast	Small, rectangular anomaly	Ferrous Target
317969.7	357449.4	FZ412	DG			Northeast	Isolated anomaly	Ferrous Target
317970.3	357433.3	FZ414	CN			Northeast	Small, rectangular anomaly	Ferrous Target
318034.1	357422.8	FZ416	DF	CX	CX	Northeast	Localized anomaly adjacent to a utility	Ferrous Target
318112.9	357447.4	FZ420	DE			Northeast	Isolated anomaly	Ferrous Target
318131.0	357450.7	FZ421	DD			Northeast	Isolated anomaly	Ferrous Target
318155.7	357454.0	FZ422	DC			Northeast	Isolated anomaly	Ferrous Target
318162.4	357551.1	FZ425	DJ			Northeast	Isolated anomaly	Ferrous Target
318177.1	357585.9	FZ427	CT			Northeast	Metallic zone near utility	Ferrous Target
318288.9	357645.4	FZ430	CX			Northeast	Isolated anomaly	Ferrous Target
318334.4	357642.1	FZ431	CW			Northeast	Isolated anomaly	Ferrous Target
318345.1	357656.1	FZ432	CV			Northeast	Isolated anomaly	Ferrous Target
318373.5	357646.5	FZ433	CU	DP	DP	Northeast	Adjacent to fence	Metallic zone, ferrous material
318248.1	357551.7	FZ435	CS	DM	DM	Northeast	Inhomogeneous material adjacent to pipeline	Metallic zone, ferrous material
318331.1	357516.3	FZ437	CY			Northeast	Isolated anomaly	Ferrous Target
318263.4	357514.3	FZ438	CR			Northeast	Metallic zone	Ferrous Target
318279.5	357498.9	FZ439	DA			Northeast	Isolated anomaly	Ferrous Target
318311.0	357486.9	FZ440	CZ			Northeast	Isolated anomaly	Ferrous Target
318211.2	357444.7	FZ441	CQ			Northeast	Small, rectangular anomaly	Ferrous Target
318381.2	357432.6	FZ442	DB			Northeast	Isolated anomaly along old rail spur	Ferrous Target
318100.7	357422.6	MZ417		CZ	CZ	Northeast	Rectangular anomaly	Conductive zone

Table 1

Integrated Interpretation Summary

Vicinity Property G

Easting (m)	Northing (m)	Integrated Designation	Magnetic Anomaly	EM Inphase Anomaly	EM Quadrature Anomaly	Map	Comment	Interpretation
318174.7	357557.2	MZ424		DI	DI	Northeast	Elevated near pipeline juncture, decrease away	Metallic zone, non-ferrous material
318171.0	357644.7	MZ429		DK	DK	Northeast	Isolated anomaly	Non-ferrous target
318048.8	357507.0	S409	CM	DD		Northeast	Faint outline on air photo	Structure
318146.3	357433.3	S419	CP			Northeast	Rectangular anomaly, faint feature on air photo	Structure
318077.4	357575.8	U300	CK			Northeast	Linear feature	Utility
318074.1	357585.2	U343	CJ			Northeast	Linear feature	Utility
318096.5	357584.1	U343		DG	DG	Northeast	Linear feature	Utility
318082.4	357469.7	U351		DB	DB	Northeast	Linear feature	Water utility
318072.1	357478.8	U403	CG			Northeast	Linear feature	Utility - similar to water but longer
318034.8	357487.9	U408	FX	DC	DC	Northeast	Linear feature	Water utility
318055.5	357433.6	U413		CW		Northeast	Linear feature	Utility, drainage ditch also
318213.3	357553.8	U426				Northeast	Linear	Water utility
318221.8	357525.4	U426	CI	DL	DL	Northeast	Wide linear feature	Water utility
317649.4	357196.6	CZ544		EU	EU	Southeast	Conductive zone adjacent to mapped structure	Conductive zone
317739.5	357204.3	CZ545	EO		EW	Southeast	Conductive zone	Conductive zone
317761.8	357204.3	CZ545	EE		EX	Southeast	Conductive zone	Conductive zone
317627.9	357253.3	CZ546	FQ		ET	Southeast	Conductive zone	Conductive zone
317564.4	356879.9	CZ562			DS	Southeast	Elevated conductivity only	Fill materials
317635.6	356918.5	CZ562, MZ565		DY	DY	Southeast	Metallic zone	Metallic zone within conductive area
317670.0	356847.3	CZ563, MZ568		DU	DU	Southeast	Broad conductivity anomaly, scattered inphase	Metallic zone within conductive area
317723.2	356882.5	CZ564			DV	Southeast	Broad conductivity anomaly	Conductive zone adjacent to metallic area
317755.6	356853.9	D509			DW	Southeast	Linear feature	Drainage ditch
317618.6	356861.2	F510			DT	Southeast	Linear feature	Fence
317626.0	356879.3	F511	DR			Southeast	Linear feature	Fence
317518.7	357325.6	F512	DK, DT	FH	FH	Southeast	Linear feature	Fence
317450.2	356921.5	F513				Southeast	Linear feature	Fence
317650.1	356768.1	F514				Southeast	Linear feature	Fence
317773.9	356987.8	F515				Southeast	Linear feature	Fence
317494.0	357300.5	FZ519		EN	EN	Southeast	Ferrous Zone	Ferrous Zone
317537.2	357328.5	FZ530	DZ			Southeast	Ferrous Zone	Ferrous Zone
317572.1	357318.7	FZ531	EX			Southeast	Ferrous Target	Ferrous Target
317551.5	357300.8	FZ532	EZ			Southeast	Ferrous Target	Ferrous Target
317570.3	357286.4	FZ533	EY			Southeast	Ferrous Target	Ferrous Target
317596.3	357340.2	FZ534	EA			Southeast	Ferrous Zone	Ferrous Zone
317603.5	357322.3	FZ535		FF	FF	Southeast	Ferrous Zone	Ferrous Zone
317634.8	357320.2	FZ535	FO	FE	FE	Southeast	Ferrous Zone	Ferrous Zone
317591.0	357280.1	FZ535	EB, EH, FA			Southeast	Ferrous Zone	Ferrous Zone
317550.5	357281.9	FZ535		EO	EO	Southeast	Metallic Zone	Metallic Zone
317579.0	357217.8	FZ535	EG	ER	ER	Southeast	Ferrous Zone	Ferrous Zone
317704.9	357203.0	FZ536	EJ, EK, EN			Southeast	Ferrous Zone	Ferrous Zone
317708.7	357246.5	FZ536	EP, EU, EV			Southeast	Ferrous Zone	Ferrous Zone
317669.1	357330.5	FZ537	ET	FD	FD	Southeast	Ferrous Zone	Ferrous Zone
317680.6	357327.6	FZ537	ES, EQ, ER, FP			Southeast	Ferrous Zone	Ferrous Zone
317582.9	357182.4	FZ538	EI			Southeast	Ferrous Zone	Ferrous Zone
317481.6	357164.4	FZ539	DV			Southeast	Ferrous Zone	Ferrous Zone
317547.2	357097.4	FZ540	DL	ED	ED	Southeast	Ferrous Zone	Ferrous Zone
317565.8	357117.8	FZ541	DS	EH	EH	Southeast	Ferrous Zone	Ferrous Zone, potential utility, fire hydrant
317621.0	357015.5	FZ542	FJ	EB	EB	Southeast	Ferrous Zone	Ferrous Zone, foundation
317488.7	357011.1	FZ548	DO			Southeast	Ferrous Zone within a metallic zone	Ferrous Zone
317609.8	356943.0	FZ552	DM			Southeast	Ferrous Zone within a metallic zone	Predominantly ferrous area located at ditch

Table 1

Integrated Interpretation Summary

Vicinity Property G

Easting (m)	Northing (m)	Integrated Designation	Magnetic Anomaly	EM Inphase Anomaly	EM Quadrature Anomaly	Map	Comment	Interpretation
317731.7	357112.5	FZ553	FN			Southeast	Ferrous Target	Ferrous Target
317749.7	357099.0	FZ554	FM			Southeast	Ferrous Target	Ferrous Target
317758.6	357043.4	FZ555	FL			Southeast	Ferrous Target	Ferrous Target
317677.0	356993.2	FZ556	FK			Southeast	Ferrous Target	Ferrous Target
317591.9	357099.0	FZ557	DQ			Southeast	Ferrous Zone	Ferrous Zone, possible foundation
317595.5	356972.6	FZ558	FI			Southeast	Ferrous Target	Ferrous Target
317586.5	356962.7	FZ559	FH			Southeast	Ferrous Target	Ferrous Target
317529.1	356948.4	FZ560	FG			Southeast	Ferrous Target	Ferrous Target
317547.9	356786.1	FZ570	DN			Southeast	Ferrous Zone	Ferrous Zone, reinforced concrete pipe
317501.3	357235.3	FZ571	FC			Southeast	Ferrous Zone	Ferrous Zone
317762.2	357265.4	MZ543		FA		Southeast	Isolated Inphase	Metallic Target, pedestal
317474.3	357124.5	MZ547		EG	EG	Southeast	Heterogeneous Material, weak inphase	Metallic Zone
317486.3	357071.6	MZ547		EF	EF	Southeast	Heterogeneous Material, moderate inphase	Metallic Zone
317488.9	357019.8	MZ547		EE	EE	Southeast	Heterogeneous Material, strong inphase	Metallic Zone
317567.8	356972.6	MZ549	FF	EA	EA	Southeast	Elevated conductivity and inphase	Metallic Zone, concrete structures
317607.4	356947.2	MZ550		DZ	DZ	Southeast	Rectangular anomaly probably related to FZ552	Metallic Zone
317714.6	356926.7	MZ551, 566, 567		DX		Southeast	Heterogeneous Material	Metallic Zone
317484.4	356830.8	MZ561		DQ		Southeast	Broad area of elevated inphase	Metallic Zone
317581.6	356805.6	MZ569		DR	DR	Southeast	Rectangular anomaly	Metallic Zone
317567.8	357054.2	S516	DL	EC	EC	Southeast	Coincident with Building 401	Building 401
317473.5	357064.1	S517	FE			Southeast	Ferrous target near structure	Structure
317488.7	357042.5	S518	DP			Southeast	Ferrous target near structure	Structure
317474.5	357285.9	S519	DX	EM	EM	Southeast	Rectangular anomaly	Structure
317474.5	357254.8	S520	FD	EL	EL	Southeast	Rectangular anomaly	Structure
317472.5	357221.7	S521, FZ521	DW	EK	EK	Southeast	Rectangular anomaly	Structure
317472.6	357201.2	S522	DW			Southeast	On edge of anomaly	Structure
317499.5	357195.8	S523	FB			Southeast	Single point ferrous target	Structure
317546.5	357227.0	S524		EQ	EQ	Southeast	Coincident with mapped structure	Structure
317545.9	357260.1	S525	DY	EP	EP	Southeast	Rectangular, coincident with mapped structure	Structure
317588.3	357259.5	S526	EC, ED, EF			Southeast	Coincident with mapped structure	Structure
317663.0	357255.5	S527		EY	EY	Southeast	Rectangular anomaly	Structure
317689.7	357222.4	S528	EL, EM	EV	EV	Southeast	Rectangular, consistent with mapped structure	Structure
317694.1	357256.8	S529		EZ		Southeast	Rectangular anomaly	Structure
317628.8	357156.3	U500		EJ	EJ	Southeast	Linear feature	Consistent with mapped water utility
317643.8	357150.9	U501	DU	EI	EI	Southeast	Linear feature	Consistent with mapped water utility
317684.6	357294.5	U502		FB	FB	Southeast	Linear Anomaly	Utility
317555.8	357342.8	U503		FG	FG	Southeast	Linear Anomaly	Utility
317715.2	357319.7	U504	EW	FC		Southeast	Linear Anomaly	Utility
317660.0	357275.6	U505	FR			Southeast	Linear Anomaly	Utility
317601.3	357243.8	U506		ES	ES	Southeast	Linear, trending from mapped pad or building	Utility
317616.1	357305.3	U507		FU		Southeast	Linear Anomaly	Utility
317744.3	357277.4	U508		FT		Southeast	Linear Anomaly	Utility
317494.2	357647.2	CZ601			GA	Property G	Elevated Conductivity	Conductive zone
317511.2	357671.4	CZ602			GB	Property G	Elevated Conductivity	Conductive zone
317546.2	357635.5	CZ603			GC	Property G	Elevated Conductivity	Conductive zone
317528.2	357757.5	CZ604			GD	Property G	Elevated Conductivity	Conductive zone
317565.9	357731.5	CZ605			GE	Property G	Elevated Conductivity	Conductive zone
317656.4	357647.2	CZ606			GF	Property G	Elevated Conductivity	Conductive zone
317692.3	357681.3	CZ607			GG	Property G	Elevated Conductivity	Conductive zone
317733.6	357692.0	CZ608			GH	Property G	Elevated Conductivity	Conductive zone
317563.3	357606.8	F301				Property G	Linear Feature	Fence
317622.4	357750.3	F609				Property G	Fence	Fence
317580.2	357682.2	S610				Property G	House	House

Targets October 2002

Table 2
Trenching Locations, Length and Depth and Rationale
Vicinity Property G

Trench ID	Location	Maximum Length, and Depth (Feet)	Rationale for Trenching Location
TG01	88' east of red roof house	65, 12 maximum	Investigation of 'University of Rochester Burial Site'
TG02	Immediately west of TG01	12, 4.5	Excavate, analyze and prepare for disposal lab debris found in 5/02
TG03	Immediately east of TG01	15, 4	Investigate 60 K cpm hotspot discovered in 5/02.
TG04	Approximately 40' northwest of TG01	50, 6 below ground surface	Trench through existing spoils pile.
TG05	200' east of red roof house	50, 10 below ground surface (excluding the depth of the debris pile at the north end of the trench).	Depressed area, may be a former disposal pit, location cited in historical literature as possible location of Rochester Burial Area.
TG06	140' south of red roof house	100, 7	Historical aerial photographs show a disturbed area south of red roof house.

Table 3
Trench and Sample Location Coordinate Information
Vicinity Property G

Sample	Sample Collection Date	A-End Coodinates		B-End Coodinates		Sample Location	Sample Coordinates		Sample Information
		Northing	Easting	Northing	Easting	Distance From A-End of Trench	Northing	Easting	
Trench TG01									
ACG01-3008-01.0-006	9/16/2002	1173548.29	1042062.65	1173484.83	1042030.03	6.00	1173542.95	1042059.91	Animal pelvic bone
LDG01-3012-03.0-021	9/16/2002	1173548.29	1042062.65	1173484.83	1042030.03	21.00	1173529.61	1042053.05	Misc. Lab Items from Trash Container
LDG01-3013-03.0-010	9/16/2002	1173548.29	1042062.65	1173484.83	1042030.03	10.00	1173539.40	1042058.08	Reagent bottle w/ orange solid
LDG01-3014-03.0-015	9/16/2002	1173548.29	1042062.65	1173484.83	1042030.03	15.00	1173534.95	1042055.79	Misc. Glass Items
TBG01-3000-06.0-050	9/11/2002	1173548.29	1042062.65	1173484.83	1042030.03	50.00	1173503.82	1042039.79	Bottom of Trench
TBG01-3001-03.0-021	9/12/2002	1173548.29	1042062.65	1173484.83	1042030.03	21.00	1173529.61	1042053.05	Soil below trash can
TBG01-3002-02.0-025	9/11/2002	1173548.29	1042062.65	1173484.83	1042030.03	25.00	1173526.06	1042051.22	Scattered lab debris
TBG01-3003-05.0-016	9/12/2002	1173548.29	1042062.65	1173484.83	1042030.03	16.00	1173534.06	1042055.34	Random Native soil
TBG01-3004-02.0-000	9/13/2002	1173548.29	1042062.65	1173484.83	1042030.03	0.00	1173548.29	1042062.65	Random Native soil
TBG01-3005-03.0-021	9/12/2002	1173548.29	1042062.65	1173484.83	1042030.03	21.00	1173529.61	1042053.05	Soil below trash can
TBG01-3006-02.0-000	9/13/2002	1173548.29	1042062.65	1173484.83	1042030.03	0.00	1173548.29	1042062.65	Random
TBG01-3007-06.0-050	9/11/2002	1173548.29	1042062.65	1173484.83	1042030.03	50.00	1173503.82	1042039.79	Bottom of Trench
TBG01-3070-03.0-021	9/12/2002	1173548.29	1042062.65	1173484.83	1042030.03	21.00	1173529.61	1042053.05	Soil inside Trash can
TBG01-3075-03.0-021	9/12/2002	1173548.29	1042062.65	1173484.83	1042030.03	21.00	1173529.61	1042053.05	Soil inside Trash can
Trench TG02									
LDG02-3017-03.0-001	9/16/2002	1173541.54	1042028.25	1173541.54	1042028.25	1.00	1173541.54	1042028.25	Misc. Lab Items
TBG02-2857-02.0	5/22/2002	1173541.54	1042028.25	1173541.54	1042028.25	2.00	1173541.54	1042028.25	Soil, Misc. glass fragments
TBG02-2858-02.0	9/16/2002	1173541.54	1042028.25	1173541.54	1042028.25	2.00	1173541.54	1042028.25	Soil, Misc. glass fragments
TBG02-3015-04.5-001	5/22/2002	1173541.54	1042028.25	1173541.54	1042028.25	1.00	1173541.54	1042028.25	Bottom of Trench
TBG02-3016-04.5-001	9/16/2002	1173541.54	1042028.25	1173541.54	1042028.25	1.00	1173541.54	1042028.25	Bottom of Trench
TBG02-3072-02.0	5/22/2002	1173541.54	1042028.25	1173541.54	1042028.25	2.00	1173541.54	1042028.25	Glass Fragments
TBG02-3073-02.0-001	9/16/2002	1173541.54	1042028.25	1173541.54	1042028.25	1.00	1173541.54	1042028.25	Soil above reburied Drum
TBG02-3076-02.0-001	9/16/2002	1173541.54	1042028.25	1173541.54	1042028.25	1.00	1173541.54	1042028.25	Absorbent Material
Trench TG03									
TBG03-3018-01.0-011	9/14/2002	1173554.65	1042031.89	1173557.28	1042046.69	11.00	1173556.57	1042042.72	Soil Below Rad Chip
TBG03-3019-04.0-015	9/14/2002	1173554.65	1042031.89	1173557.28	1042046.69	15.00	1173557.27	1042046.66	End of trench
TBG03-3071-01.0-011	9/14/2002	1173554.65	1042031.89	1173557.28	1042046.69	11.00	1173556.57	1042042.72	Rad Chip
TBG03-3074-01.0-011	9/14/2002	1173554.65	1042031.89	1173557.28	1042046.69	2.00	1173555.00	1042033.86	Rad Chip

Table 3
Trench and Sample Location Coordinate Information
Vicinity Property G

Sample	Sample Collection Date	A-End Coodinates		B-End Coodinates		Sample Location	Sample Coordinates		Sample Information
		Northing	Easting	Northing	Easting	Distance From A-End of Trench	Northing	Easting	
Trench TG04									
LDG04-3037-01.0-013	9/16/2002	1173561.72	1042007.61	1173523.54	1042004.46	13.00	1173548.76	1042006.54	Bottle with glass beads
TBG04-3025-01.0-010	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	10.00	1173551.75	1042006.79	Native soil
TBG04-3026-05.0-013	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	13.00	1173548.76	1042006.54	Bottom of Trench
TBG04-3027-04.0-027	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	27.00	1173534.81	1042005.39	Soil
TBG04-3028-06.0-030	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	30.00	1173531.82	1042005.14	Soil from Bottom of Trench
TBG04-3029-04.0-040	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	40.00	1173521.86	1042004.32	Soil
TBG04-3030-04.0-027	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	27.00	1173534.81	1042005.39	Soil
TBG04-3031-06.0-030	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	30.00	1173531.82	1042005.14	Bottom of Trench
TBG04-3032-04.0-040	9/13/2002	1173561.72	1042007.61	1173523.54	1042004.46	40.00	1173521.86	1042004.32	Soil
Trench TG05									
TBG05-3040-05.0-012	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	12.00	1173481.41	1042151.17	Native soil
TBG05-3041-10.0-014	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	14.00	1173479.41	1042151.34	Bottom of Trench
TBG05-3042-04.0-035	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	35.00	1173458.50	1042153.19	Native soil
TBG05-3043-03.0-045	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	45.00	1173448.54	1042154.08	Native soil
TBG05-3044-07.0-050	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	50.00	1173443.55	1042154.52	Native soil
TBG05-3045-10.0-014	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	14.00	1173479.41	1042151.34	Bottom of Trench
TBG05-3046-04.0-035	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	35.00	1173458.50	1042153.19	Native soil
TBG05-3047-07.0-050	9/14/2002	1173493.36	1042150.11	1173452.22	1042153.75	50.00	1173443.55	1042154.52	Native soil
Trench TG06									
TBG06-3056-02.0-035	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	35.00	1173389.03	1041953.82	Random
TBG06-3057-02.0-045	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	45.00	1173385.67	1041963.24	Native soil
TBG06-3058-01.0-070	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	70.00	1173377.27	1041986.79	Random
TBG06-3061-02.0-045	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	45.00	1173385.67	1041963.24	Native soil
TSG06-3055-015	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	15.00	1173395.76	1041934.99	Surface soil/Staining
TSG06-3059-085	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	85.00	1173372.22	1042000.91	Surface soil/Staining
TSG06-3060-015	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	15.00	1173395.76	1041934.99	Surface soil/Staining
TSG06-3062-085	9/15/2002	1173400.80	1041920.86	1173366.67	1042016.47	85.00	1173372.22	1042000.91	Surface soil/Staining

Note: Coordinates are expressed in terms of the 1983 New York West NAD 83 State Planar System.

Table 4
Parameters and Analytical Methods
Requirements for VPG Drum Residue Sampling
Vicinity Property G

Parameter	Methodology
Radionuclides, Isotopic Uranium Isotopic Thorium (alpha)	HASL 300 alpha
U-235/238, Ra-226, Ra-228, Th-228, Pa-231, Ac-227, Co-60, Cs-137, Am-241 (Gamma)	HASL 300 gamma
Additional Radionuclides	HASL 300 alpha
Pu-238, 239/240, Sr-90	EPA 900 mod-gas flow
Gross Alpha (a) and Beta (ß)	EPA 900 gas flow
Total Uranium	ASTM D-5174, KPA
Total Activity	Liquid scintillation
Total Metals (23 TAL plus Li and B)	SW846 3050B 6010B/6020/7470A
Pesticides/PCBs	SW846 3550B 8081A/8082
TCLP-VOCs	1311 8260B
TCLP-SVOCs	1311 8270C
TCLP-Pesticides	1311 8081A
TCLP-Herbicides	1311 8151A
TCLP-Metals	1311 6010B 7471A
Reactivity	SW846 Sec. 7.3
Corrosivity	SW846 9040C
Ignitability	SW846 1010A
Paint Filter	SW846 9095

1) TCLP = Toxicity Characteristic Leachate Procedure

Table 5
Inventory of IDW Drums
Vicinity Property G

Drum Identifier	SAIC Drum Number	Date of Generation	Drum Contents	Drum Type
September 2002 VPG Trenching Mobilization				
VPG PPE	148	Sep-02	PPE	55 gallon
VPG PPE	149	Sep-02	PPE	55 gallon
VPG PPE	150	Sep-02	PPE	55 gallon
VPG PPE	151	Sep-02	PPE	55 gallon
VPG Lab Debris	NA	Sep-02	Soil and Lab Debris (Sheet metal cans, glass, etc.)	55 gallon
VPG Plastic Sheeting	NA	Sep-02	Plastic Sheeting	55 gallon
VPG Decon Solids	NA	Sep-02	Decon Solids	55 gallon
VPG PPE	117	Sep-02	PPE, plastic tarps	55 gallon
Eight Drums				
Drum Task - July 2003				
0177729	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon
0177540	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon
0177730	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon
0177739	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon
0177740	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon
0177749	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon
0177750	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon
0177738	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack
0177728	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack
0177733	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack
0177734	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack
0177737	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack
0177727	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack
13 Drums				

IDW = Investigation Derived Waste
NA = Not assigned, number will be assigned when the drum is frisked by Health Physics personnel prior to shipment to disposal facility.
PPE = Personal protective equipment

Table 6
Summary of Detections of Radiological Parameters,
VPG Trenching Animal Carcass and Laboratory Debris Samples
Vicinity Property G

Sample_No	Collection Date	Parameter	Lab Result	Uncertainty	Units
ACG01-3008-01.0-006	9/16/2002	Alpha	150	11.2	pCi/g
		Beta	731	11	pCi/g
		Plutonium-239/240	8.08	1.21	pCi/g
		Radium-226	17.10	1.88	pCi/g
		Strontium-90	306.00	5.71	pCi/g
		Total Activity	625.00	18.5	pCi/g
		Uranium-234	18.00	3.06	pCi/g
		Uranium-235-Alpha	0.62	0.345	pCi/g
		Uranium-238-Alpha	17.70	3.02	pCi/g
LDG01-3012-03.0-021	9/16/2002	Alpha	1.78	1.07	pCi/g
LDG01-3014-03.0-015	9/16/2002	Alpha	2.82	0.927	pCi/g
LDG02-9017-03.0-001	9/16/2002	Alpha	103	5.45	pCi/g
LDG02-3017-03.0-001	9/16/2002	Alpha	559	31.8	pCi/g
		Min	1.78		pCi/g
		Max	559		pCi/g
		Avg	166.65		pCi/g
LDG01-3012-03.0-021	9/16/2002	Beta	2.65	1.1	pCi/g
LDG01-3014-03.0-015	9/16/2002	Beta	3.87	0.938	pCi/g
LDG01-3013-03.0-010	9/16/2002	Beta	3.89	1.24	pCi/g
LDG02-3017-03.0-001	9/16/2002	Beta	559	24.6	pCi/g
		Min	2.65		pCi/g
		Max	559		pCi/g
		Avg	142.35		pCi/g
LDG01-3014-03.0-015	9/16/2002	Plutonium-239/240	1.34	0.299	pCi/g
LDG02-3017-03.0-001	9/16/2002	Plutonium-239/240	2.23	0.466	pCi/g
		Min	1.34		pCi/g
		Max	2.23		pCi/g
		Avg	1.79		pCi/g
LDG01-3013-03.0-010	9/16/2002	Radium-226	0.62	0.247	pCi/g
LDG01-3014-03.0-015	9/16/2002	Radium-226	2.34	0.468	pCi/g
LDG02-3017-03.0-001	9/16/2002	Radium-226	293	13.2	pCi/g
		Min	0.62		pCi/g
		Max	293		pCi/g
		Avg	98.65		pCi/g
LDG02-3017-03.0-001	9/16/2002	Radium-226	193	21	pCi/g
LDG01-3014-03.0-015	9/16/2002	Radium-228	0.14	0.0676	pCi/g
LDG01-3014-03.0-015	9/16/2002	Strontium-90	0.58	0.264	pCi/g
LDG01-3012-03.0-021	9/16/2002	Strontium-90	2.21	0.392	pCi/g
LDG02-3017-03.0-001	9/16/2002	Strontium-90	4.48	0.586	pCi/g
		Min	0.58		pCi/g
		Max	4.48		pCi/g
		Avg	2.42		pCi/g

Table 6
Summary of Detections of Radiological Parameters,
VPG Trenching Animal Carcass and Laboratory Debris Samples
Vicinity Property G

Sample_No	Collection Date	Parameter	Lab Result	Uncertainty	Units
LDG01-3013-03.0-010	9/16/2002	Thorium-228-Gamma	0.01	0.0122	pCi/g
LDG01-3014-03.0-015	9/16/2002	Thorium-228-Gamma	0.08	0.0237	pCi/g
LDG02-9017-03.0-001	9/16/2002	Thorium-228-Gamma	0.13	0.0803	pCi/g
		Min	0.01		pCi/g
		Max	0.13		pCi/g
		Avg	0.07		pCi/g
LDG01-3012-03.0-021	9/16/2002	Thorium-230	0.27	0.156	pCi/g
LDG01-3014-03.0-015	9/16/2002	Thorium-230	0.58	0.276	pCi/g
LDG02-3017-03.0-001	9/16/2002	Thorium-230	0.64	0.451	pCi/g
		Min	0.27		pCi/g
		Max	0.64		pCi/g
		Avg	0.50		pCi/g
LDG04-3037-01.0-013	9/16/2002	Total Activity	5.24	2.03	pCi/g
LDG01-3013-03.0-010	9/16/2002	Total Activity	9.97	0.529	pCi/g
LDG01-3014-03.0-015	9/16/2002	Total Activity	41.60	1.62	pCi/g
LDG02-3017-03.0-001	9/16/2002	Total Activity	2380	49.1	pCi/g
		Min	5.24		pCi/g
		Max	2380		pCi/g
		Avg	609.20		pCi/g
LDG01-3013-03.0-010	9/16/2002	Uranium-234	0.30	0.184	pCi/g
LDG01-3012-03.0-021	9/16/2002	Uranium-234	0.47	0.252	pCi/g
LDG01-3014-03.0-015	9/16/2002	Uranium-234	0.69	0.303	pCi/g
LDG02-3017-03.0-001	9/16/2002	Uranium-234	1.59	0.45	pCi/g
		Min	0.30		pCi/g
		Max	1.59		pCi/g
		Avg	0.76		pCi/g
LDG01-3013-03.0-010	9/16/2002	Uranium-238-Alpha	0.35	0.189	pCi/g
LDG01-3012-03.0-021	9/16/2002	Uranium-238-Alpha	0.39	0.221	pCi/g
LDG01-3014-03.0-015	9/16/2002	Uranium-238-Alpha	0.52	0.263	pCi/g
LDG02-3017-03.0-001	9/16/2002	Uranium-238-Alpha	1.18	0.371	pCi/g
		Min	0.35		pCi/g
		Max	1.18		pCi/g
		Avg	0.61		pCi/g

There was one animal carcass samples and five lab debris samples. Minimum, maximum and average are calculated only for parameters with results above detection limits.

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Actinium-227, Gamma (Background Value = 0.181 pCi/g)						
TBG02-2858-02.0	5/22/2002	123	pCi/g	20	J	Yes
TBG03-3071-01.0-011	9/16/2002	1100	pCi/g	733	J	Yes
	Minimum	123				
	Maximum	1100				
	Average	612				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Americium-241, Gamma (Background Value = 0.0556 pCi/g)						
TBG02-2858-02.0	5/22/2002	0	pCi/g	1.04	UJ	No
TBG03-3071-01.0-011	9/16/2002	-254	pCi/g	378	UJ	No
	Minimum	-254				
	Maximum	0				
	Average	-127				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Cesium-137, Gamma (Background Value = 0.343pCi/g)						
TBG01-3001-03.0-021	9/12/2002	0.0491	pCi/g	0.0227		No
TBG01-3002-02.0-025	9/11/2002	0.167	pCi/g	0.0332		No
TBG01-3003-05.0-016	9/12/2002	0.0572	pCi/g	0.0155		No
TBG01-3070-03.0-021	9/12/2002	0.117	pCi/g	0.0581		No
TBG02-2857-02.0	5/22/2002	0.069	pCi/g	0.0446		No
TBG02-2858-02.0	5/22/2002	0.493	pCi/g	0.23	J	Yes
TBG02-3015-04.5-001	9/16/2002	0.0474	pCi/g	0.0238		No
TBG02-3073-02.0-001	9/16/2002	0.0826	pCi/g	0.0337		No
TBG03-3018-01.0-011	9/14/2002	0.095	pCi/g	0.0238		No
TBG03-3071-01.0-011	9/16/2002	-6.12	pCi/g	58.5	UJ	No
TBG03-3074-01.0-011	9/16/2002	0	pCi/g	0.588	UUI	No
TBG04-3027-04.0-027	9/13/2002	0.0497	pCi/g	0.0376		No
TBG04-3029-04.0-040	9/13/2002	0.039	pCi/g	0.0162		No
TBG05-3040-05.0-012	9/14/2002	0.169	pCi/g	0.0376		No
TBG05-3043-03.0-045	9/14/2002	0.0341	pCi/g	0.0173		No
TBG06-3058-01.0-070	9/15/2002	0.0845	pCi/g	0.0209		No
TSG06-3059-085	9/15/2002	0.17	pCi/g	0.0272		No
	Minimum	-6.12				
	Maximum	0.493				
	Average	-0.259				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Cobalt-60, Gamma (Background Value = 0.0199 pCi/g)						
TBG02-2858-02.0	5/22/2002	0.0714	pCi/g	0.4	UJ	Yes
TBG03-3071-01.0-011	9/16/2002	-50.3	pCi/g	61.8	UJ	No
	Minimum	-50.30				
	Maximum	0.0714				
	Average	-25.114				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Gross Alpha (Background Value: TBG = 15.1 and TSG = DL pCi/g)						
TBG01-3000-06.0-050	9/11/2002	8.39	pCi/g	4.42		No
TBG01-3001-03.0-021	9/12/2002	13.8	pCi/g	4.84		No
TBG01-3002-02.0-025	9/11/2002	10.3	pCi/g	4.58		No
TBG01-3003-05.0-016	9/12/2002	12.6	pCi/g	4.61		No
TBG01-3004-02.0-000	9/13/2002	9.87	pCi/g	3.65		No
TBG01-3070-03.0-021	9/12/2002	78.7	pCi/g	10.8		Yes
TBG02-2857-02.0	5/22/2002	184	pCi/g	9.38		Yes
TBG02-2858-02.0	5/22/2002	12200	pCi/g	74.1	J	Yes
TBG02-3015-04.5-001	9/16/2002	68.8	pCi/g	7.62		Yes
TBG02-3073-02.0-001	9/16/2002	119	pCi/g	9.58		Yes
TBG02-3076-02.0-001	9/16/2002	45.4	pCi/g	3.05		Yes
TBG03-3018-01.0-011	9/14/2002	16.5	pCi/g	3.81		Yes
TBG03-3071-01.0-011	9/16/2002	595000	pCi/g	10800	J	Yes
TBG03-3074-01.0-011	9/16/2002	5730	pCi/g	272		Yes
TBG04-3025-01.0-010	9/13/2002	8.97	pCi/g	3.05		No
TBG04-3026-05.0-013	9/13/2002	9.38	pCi/g	2.87		No
TBG04-3027-04.0-027	9/13/2002	8.78	pCi/g	2.66		No
TBG04-3028-06.0-030	9/13/2002	10.8	pCi/g	3.2		No
TBG04-3029-04.0-040	9/13/2002	9.49	pCi/g	3.03		No
TBG05-3040-05.0-012	9/14/2002	19.7	pCi/g	4.02		Yes
TBG05-3041-10.0-014	9/14/2002	13.4	pCi/g	3.76		No
TBG05-3042-04.0-035	9/14/2002	11.6	pCi/g	3.29		No
TBG05-3043-03.0-045	9/14/2002	12.9	pCi/g	3.89		No
TBG05-3044-07.0-050	9/14/2002	11.8	pCi/g	3.62		No
TBG06-3056-02.0-035	9/15/2002	15	pCi/g	2.87		No
TBG06-3057-02.0-045	9/15/2002	11.9	pCi/g	3.29		No
TBG06-3058-01.0-070	9/15/2002	12.1	pCi/g	3.42		No
TSG06-3055-015	9/15/2002	10.9	pCi/g	2.92		Yes
TSG06-3059-085	9/15/2002	14.7	pCi/g	2.83		Yes
	Minimum	8.39				
	Maximum	595000				
	Average	21161				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Gross Beta (Background Value: TBG = 28.9 and TSG = DL pCi/g)						
TBG01-3000-06.0-050	9/11/2002	23.2	pCi/g	4.97		No
TBG01-3001-03.0-021	9/12/2002	25	pCi/g	4.79		No
TBG01-3002-02.0-025	9/11/2002	20.8	pCi/g	4.94		No
TBG01-3003-05.0-016	9/12/2002	19.9	pCi/g	4.65		No
TBG01-3004-02.0-000	9/13/2002	19.8	pCi/g	3.51		No
TBG01-3070-03.0-021	9/12/2002	104	pCi/g	9.01		No
TBG02-2857-02.0	5/22/2002	123	pCi/g	4.57		Yes
TBG02-2858-02.0	5/22/2002	6330	pCi/g	32	J	Yes
TBG02-3015-04.5-001	9/16/2002	54.7	pCi/g	4.94		Yes
TBG02-3073-02.0-001	9/16/2002	82.3	pCi/g	5.93		Yes
TBG02-3076-02.0-001	9/16/2002	27.9	pCi/g	1.77		No
TBG03-3018-01.0-011	9/14/2002	23.6	pCi/g	3.88		No
TBG03-3071-01.0-011	9/16/2002	425000	pCi/g	7430	J	Yes
TBG03-3074-01.0-011	9/16/2002	2000	pCi/g	108		Yes
TBG04-3025-01.0-010	9/13/2002	16.1	pCi/g	3.51		No
TBG04-3026-05.0-013	9/13/2002	20.8	pCi/g	3.34		No
TBG04-3027-04.0-027	9/13/2002	20.4	pCi/g	3.38		No
TBG04-3028-06.0-030	9/13/2002	27.9	pCi/g	3.69		No
TBG04-3029-04.0-040	9/13/2002	23.7	pCi/g	3.41		No
TBG05-3040-05.0-012	9/14/2002	27.6	pCi/g	3.59		No
TBG05-3041-10.0-014	9/14/2002	26.9	pCi/g	3.77		No
TBG05-3042-04.0-035	9/14/2002	25.4	pCi/g	3.72		No
TBG05-3043-03.0-045	9/14/2002	27.1	pCi/g	3.73		No
TBG05-3044-07.0-050	9/14/2002	25.5	pCi/g	3.69		No
TBG06-3056-02.0-035	9/15/2002	28.1	pCi/g	3.03		No
TBG06-3057-02.0-045	9/15/2002	23.1	pCi/g	3.52		No
TBG06-3058-01.0-070	9/15/2002	19.6	pCi/g	3.32		No
TSG06-3055-015	9/15/2002	21.9	pCi/g	2.98		Yes
TSG06-3059-085	9/15/2002	19.1	pCi/g	2.88		Yes
	Minimum	16.1				
	Maximum	425000				
	Average	14973				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Plutonium-238, Alpha (Background Value = DL pCi/g)						
TBG02-2858-02.0	5/22/2002	0.111	pCi/g	0.198	UJ	Yes
TBG03-3071-01.0-011	9/16/2002	1.79	pCi/g	99.1	UJ	Yes
	Minimum	0.11				
	Maximum	1.79				
	Average	0.951				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Plutonium-239/240, Alpha (Background Value = DL pCi/g)						
TBG01-3070-03.0-021	9/12/2002	0.498	pCi/g	0.267		Yes
TBG02-2857-02.0	5/22/2002	17.6	pCi/g	1.82		Yes
TBG02-2858-02.0	5/22/2002	0.131	pCi/g	0.141	UJ	Yes
TBG02-3015-04.5-001	9/16/2002	0.409	pCi/g	0.239		Yes
TBG02-3073-02.0-001	9/16/2002	0.481	pCi/g	0.28		Yes
TBG02-3076-02.0-001	9/16/2002	2.42	pCi/g	0.357		Yes
TBG03-3071-01.0-011	9/16/2002	-41	pCi/g	108	UJ	Yes
	Minimum	-41.00				
	Maximum	17.6				
	Average	-2.780				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Potassium-40, Gamma (Background Value: TBG = 32.9 and TSG = 31.1 pCi/g)						
TBG01-3004-02.0-000	9/13/2002	18.7	pCi/g	2.16		No
TBG02-3015-04.5-001	9/16/2002	18.2	pCi/g	2.12		No
TBG02-3073-02.0-001	9/16/2002	18.6	pCi/g	2.17		No
TBG03-3018-01.0-011	9/14/2002	15.8	pCi/g	1.85		No
TBG04-3025-01.0-010	9/13/2002	12.1	pCi/g	1.48		No
TBG04-3026-05.0-013	9/13/2002	13.4	pCi/g	1.5		No
TBG04-3027-04.0-027	9/13/2002	12.8	pCi/g	1.56		No
TBG04-3028-06.0-030	9/13/2002	20.1	pCi/g	2.35		No
TBG04-3029-04.0-040	9/13/2002	18	pCi/g	2.04		No
TBG05-3040-05.0-012	9/14/2002	15.7	pCi/g	1.71		No
TBG05-3041-10.0-014	9/14/2002	21.6	pCi/g	2.44		No
TBG05-3043-03.0-045	9/14/2002	19.9	pCi/g	2.27		No
TBG05-3044-07.0-050	9/14/2002	19.9	pCi/g	2.32		No
TBG06-3056-02.0-035	9/15/2002	22.7	pCi/g	2.58		No
TBG06-3057-02.0-045	9/15/2002	19.1	pCi/g	2.17		No
TBG06-3058-01.0-070	9/15/2002	18.4	pCi/g	2.11		No
TSG06-3055-015	9/15/2002	17.4	pCi/g	1.86		No
TSG06-3059-085	9/15/2002	17.5	pCi/g	1.98		No
	Minimum	12.10				
	Maximum	22.7				
	Average	17.772				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Protactinium-231, Gamma (Background Value = 0.903 pCi/g)						
TBG02-2858-02.0	5/22/2002	108	pCi/g	20.8	J	Yes
TBG03-3071-01.0-011	9/16/2002	-1110	pCi/g	3170	UJ	No
	Minimum	-1110				
	Maximum	108				
	Average	-501				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Radium-226 (Background Value = 1.2 pCi/g)						
TBG02-3076-02.0-001	9/16/2002	15	pCi/g	0.851		Yes
TBG03-3071-01.0-011	9/16/2002	485000	pCi/g	18700		Yes
TBG03-3074-01.0-011	9/16/2002	3430	pCi/g	75.3		Yes
	Minimum	15				
	Maximum	485000				
	Average	162815				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Radium-226, Gamma (Background Value: TBG = 1.2 and TSG = 0.921pCi/g)						
TBG01-3000-06.0-050	9/11/2002	0.758	pCi/g	0.135		No
TBG01-3001-03.0-021	9/12/2002	0.962	pCi/g	0.146		No
TBG01-3002-02.0-025	9/11/2002	0.608	pCi/g	0.101		No
TBG01-3003-05.0-016	9/12/2002	0.94	pCi/g	0.123		No
TBG01-3004-02.0-000	9/13/2002	0.814	pCi/g	0.12		No
TBG01-3070-03.0-021	9/12/2002	25.8	pCi/g	2.83		Yes
TBG02-2857-02.0	5/22/2002	34.5	pCi/g	4.22		Yes
TBG02-2858-02.0	5/22/2002	1980	pCi/g	236	J	Yes
TBG02-3015-04.5-001	9/16/2002	10.4	pCi/g	1.29		Yes
TBG02-3073-02.0-001	9/16/2002	17.7	pCi/g	2.2		Yes
TBG03-3018-01.0-011	9/14/2002	2.36	pCi/g	0.296		Yes
TBG03-3071-01.0-011	9/16/2002	74800	pCi/g	8420	J	Yes
TBG03-3074-01.0-011	9/16/2002	1660	pCi/g	220		Yes
TBG04-3025-01.0-010	9/13/2002	0.59	pCi/g	0.128		No
TBG04-3026-05.0-013	9/13/2002	0.648	pCi/g	0.115		No
TBG04-3027-04.0-027	9/13/2002	0.668	pCi/g	0.138		No
TBG04-3028-06.0-030	9/13/2002	0.718	pCi/g	0.11		No
TBG04-3029-04.0-040	9/13/2002	0.705	pCi/g	0.102		No
TBG05-3040-05.0-012	9/14/2002	0.995	pCi/g	0.154		No
TBG05-3041-10.0-014	9/14/2002	0.703	pCi/g	0.1		No
TBG05-3042-04.0-035	9/14/2002	0.612	pCi/g	0.0909		No
TBG05-3043-03.0-045	9/14/2002	0.794	pCi/g	0.113		No
TBG05-3044-07.0-050	9/14/2002	0.689	pCi/g	0.107		No
TBG06-3056-02.0-035	9/15/2002	0.816	pCi/g	0.113		No
TBG06-3057-02.0-045	9/15/2002	0.796	pCi/g	0.111		No
TBG06-3058-01.0-070	9/15/2002	0.747	pCi/g	0.107		No
TSG06-3055-015	9/15/2002	0.781	pCi/g	0.131		No
TSG06-3059-085	9/15/2002	0.792	pCi/g	0.112		No
	Minimum	0.590				
	Maximum	74800				
	Average	2805				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Radium-228, Gamma (Background Value = 1.26 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	0.976	pCi/g	0.203		No
TBG01-3001-03.0-021	9/12/2002	1.01	pCi/g	0.176		No
TBG01-3002-02.0-025	9/11/2002	0.638	pCi/g	0.156		No
TBG01-3003-05.0-016	9/12/2002	0.853	pCi/g	0.157		No
TBG01-3004-02.0-000	9/13/2002	1.1	pCi/g	0.218		No
TBG01-3070-03.0-021	9/12/2002	0.713	pCi/g	0.272		No
TBG02-2857-02.0	5/22/2002	0.862	pCi/g	0.21		No
TBG02-2858-02.0	5/22/2002	-1.37	pCi/g	0.939	UJ	No
TBG02-3015-04.5-001	9/16/2002	0.898	pCi/g	0.192		No
TBG02-3073-02.0-001	9/16/2002	0.828	pCi/g	0.189		No
TBG03-3018-01.0-011	9/14/2002	0.785	pCi/g	0.177		No
TBG03-3071-01.0-011	9/16/2002	156	pCi/g	226	UJ	Yes
TBG04-3025-01.0-010	9/13/2002	0.717	pCi/g	0.187		No
TBG04-3026-05.0-013	9/13/2002	0.706	pCi/g	0.151		No
TBG04-3027-04.0-027	9/13/2002	0.68	pCi/g	0.201		No
TBG04-3028-06.0-030	9/13/2002	0.869	pCi/g	0.197		No
TBG04-3029-04.0-040	9/13/2002	0.872	pCi/g	0.166		No
TBG05-3040-05.0-012	9/14/2002	0.893	pCi/g	0.178		No
TBG05-3041-10.0-014	9/14/2002	1.02	pCi/g	0.193		No
TBG05-3042-04.0-035	9/14/2002	0.791	pCi/g	0.147		No
TBG05-3043-03.0-045	9/14/2002	1.06	pCi/g	0.188		No
TBG05-3044-07.0-050	9/14/2002	0.887	pCi/g	0.188		No
TBG06-3056-02.0-035	9/15/2002	1.07	pCi/g	0.196		No
TBG06-3057-02.0-045	9/15/2002	1	pCi/g	0.189		No
TBG06-3058-01.0-070	9/15/2002	0.915	pCi/g	0.169		No
TSG06-3055-015	9/15/2002	0.96	pCi/g	0.18		No
TSG06-3059-085	9/15/2002	0.89	pCi/g	0.174		No
	Minimum	-1.37				
	Maximum	156				
	Average	6.54				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Strontium-90 (Background Value = DL pCi/g)						
TBG01-3070-03.0-021	9/12/2002	27.1	pCi/g	1.55		Yes
TBG02-2857-02.0	5/22/2002	10.3	pCi/g	0.815		Yes
TBG02-2858-02.0	5/22/2002	8.56	pCi/g	0.692		Yes
TBG02-3015-04.5-001	9/16/2002	1.37	pCi/g	0.539		Yes
TBG02-3073-02.0-001	9/16/2002	1.62	pCi/g	0.69		Yes
TBG02-3076-02.0-001	9/16/2002	2.82	pCi/g	0.466		Yes
TBG03-3071-01.0-011	9/16/2002	225	pCi/g	4.63		Yes
TBG03-3074-01.0-011	9/16/2002	2.9	pCi/g	0.67		Yes
	Minimum	1.37				
	Maximum	225				
	Average	35.0				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Thorium-228, Alpha (Background Value = 1.64 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	1.29	pCi/g	0.436		No
TBG01-3001-03.0-021	9/12/2002	0.863	pCi/g	0.282		No
TBG01-3002-02.0-025	9/11/2002	0.847	pCi/g	0.397		No
TBG01-3003-05.0-016	9/12/2002	0.731	pCi/g	0.283		No
TBG01-3004-02.0-000	9/13/2002	0.798	pCi/g	0.341		No
TBG02-2857-02.0	5/22/2002	0.737	pCi/g	0.436		No
TBG02-2858-02.0	5/22/2002	1.66	pCi/g	4.76	UJ	Yes
TBG02-3015-04.5-001	9/16/2002	0.969	pCi/g	0.305		No
TBG02-3073-02.0-001	9/16/2002	0.776	pCi/g	0.435		No
TBG03-3018-01.0-011	9/14/2002	1.04	pCi/g	0.38		No
TBG03-3071-01.0-011	9/16/2002	2530	pCi/g	3720	UJ	Yes
TBG04-3025-01.0-010	9/13/2002	0.688	pCi/g	0.363		No
TBG04-3026-05.0-013	9/13/2002	0.966	pCi/g	0.393		No
TBG04-3027-04.0-027	9/13/2002	1.2	pCi/g	0.461		No
TBG04-3028-06.0-030	9/13/2002	1.39	pCi/g	0.545		No
TBG04-3029-04.0-040	9/13/2002	1.08	pCi/g	0.453		No
TBG05-3040-05.0-012	9/14/2002	0.696	pCi/g	0.375		No
TBG05-3041-10.0-014	9/14/2002	1.04	pCi/g	0.425		No
TBG05-3042-04.0-035	9/14/2002	1.01	pCi/g	0.462		No
TBG05-3043-03.0-045	9/14/2002	1.4	pCi/g	0.498		No
TBG05-3044-07.0-050	9/14/2002	0.638	pCi/g	0.391		No
TBG06-3056-02.0-035	9/15/2002	1.33	pCi/g	0.641		No
TBG06-3057-02.0-045	9/15/2002	1.12	pCi/g	0.65		No
TBG06-3058-01.0-070	9/15/2002	1.1	pCi/g	0.587		No
TSG06-3055-015	9/15/2002	0.763	pCi/g	0.496		No
TSG06-3059-085	9/15/2002	0.689	pCi/g	0.398		No
	Minimum	0.638				
	Maximum	2530				
	Average	98.3				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Thorium-228, Gamma (Background Value = 1.64 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	1.11	pCi/g	0.18		No
TBG01-3001-03.0-021	9/12/2002	0.986	pCi/g	0.142		No
TBG01-3002-02.0-025	9/11/2002	0.847	pCi/g	0.107		No
TBG01-3003-05.0-016	9/12/2002	0.941	pCi/g	0.106		No
TBG01-3004-02.0-000	9/13/2002	1.16	pCi/g	0.137		No
TBG01-3070-03.0-021	9/12/2002	0.912	pCi/g	0.161		No
TBG02-2857-02.0	5/22/2002	1.02	pCi/g	0.145		No
TBG02-2858-02.0	5/22/2002	0.0968	pCi/g	0.586	UJ	No
TBG02-3015-04.5-001	9/16/2002	0.97	pCi/g	0.118		No
TBG02-3073-02.0-001	9/16/2002	0.903	pCi/g	0.116		No
TBG03-3018-01.0-011	9/14/2002	0.946	pCi/g	0.115		No
TBG03-3071-01.0-011	9/16/2002	-0.822	pCi/g	165	UJ	No
TBG03-3074-01.0-011	9/16/2002	0	pCi/g	1.08	UUI	No
TBG04-3025-01.0-010	9/13/2002	0.781	pCi/g	0.124		No
TBG04-3026-05.0-013	9/13/2002	0.857	pCi/g	0.105		No
TBG04-3027-04.0-027	9/13/2002	0.824	pCi/g	0.131		No
TBG04-3028-06.0-030	9/13/2002	1.1	pCi/g	0.132		No
TBG04-3029-04.0-040	9/13/2002	0.916	pCi/g	0.107		No
TBG05-3040-05.0-012	9/14/2002	0.87	pCi/g	0.129		No
TBG05-3041-10.0-014	9/14/2002	1.1	pCi/g	0.127		No
TBG05-3042-04.0-035	9/14/2002	0.96	pCi/g	0.111		No
TBG05-3043-03.0-045	9/14/2002	1.08	pCi/g	0.123		No
TBG05-3044-07.0-050	9/14/2002	1.04	pCi/g	0.126		No
TBG06-3056-02.0-035	9/15/2002	1.28	pCi/g	0.145		No
TBG06-3057-02.0-045	9/15/2002	1.14	pCi/g	0.131		No
TBG06-3058-01.0-070	9/15/2002	1.03	pCi/g	0.117		No
TSG06-3055-015	9/15/2002	1.05	pCi/g	0.153		No
TSG06-3059-085	9/15/2002	0.974	pCi/g	0.113		No
	Minimum	-0.822				
	Maximum	1.28				
	Average	0.860				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Thorium-230, Alpha (Background Value: TBG = 1.39 and TSG = 1.6 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	1.33	pCi/g	0.391		No
TBG01-3001-03.0-021	9/12/2002	0.765	pCi/g	0.242		No
TBG01-3002-02.0-025	9/11/2002	1.45	pCi/g	0.463		Yes
TBG01-3003-05.0-016	9/12/2002	0.862	pCi/g	0.278		No
TBG01-3004-02.0-000	9/13/2002	0.896	pCi/g	0.32		No
TBG01-3070-03.0-021	9/12/2002	1.09	pCi/g	0.377		No
TBG02-2857-02.0	5/22/2002	1.23	pCi/g	0.506	J	No
TBG02-2858-02.0	5/22/2002	1040	pCi/g	311	J	Yes
TBG02-3015-04.5-001	9/16/2002	0.973	pCi/g	0.282		No
TBG02-3073-02.0-001	9/16/2002	1.03	pCi/g	0.466		No
TBG03-3018-01.0-011	9/14/2002	1.16	pCi/g	0.401		No
TBG03-3071-01.0-011	9/16/2002	45700	pCi/g	14800	J	Yes
TBG03-3074-01.0-011	9/16/2002	2.04	pCi/g	1.01		Yes
TBG04-3025-01.0-010	9/13/2002	1.01	pCi/g	0.408		No
TBG04-3026-05.0-013	9/13/2002	1	pCi/g	0.351		No
TBG04-3027-04.0-027	9/13/2002	1.5	pCi/g	0.48		Yes
TBG04-3028-06.0-030	9/13/2002	1.12	pCi/g	0.435		No
TBG04-3029-04.0-040	9/13/2002	1.02	pCi/g	0.374		No
TBG05-3040-05.0-012	9/14/2002	1.55	pCi/g	0.472		Yes
TBG05-3041-10.0-014	9/14/2002	1.35	pCi/g	0.428		No
TBG05-3042-04.0-035	9/14/2002	1.42	pCi/g	0.5		Yes
TBG05-3043-03.0-045	9/14/2002	1.53	pCi/g	0.483		Yes
TBG05-3044-07.0-050	9/14/2002	1.04	pCi/g	0.395		No
TBG06-3056-02.0-035	9/15/2002	1.25	pCi/g	0.592		No
TBG06-3057-02.0-045	9/15/2002	1.69	pCi/g	0.771		Yes
TBG06-3058-01.0-070	9/15/2002	1.27	pCi/g	0.591		No
TSG06-3055-015	9/15/2002	0.98	pCi/g	0.528		No
TSG06-3059-085	9/15/2002	0.942	pCi/g	0.427		No
	Minimum	0.765				
	Maximum	45700				
	Average	1670.411				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Thorium-232, Alpha (Background Value = 1.24 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	0.899	pCi/g	0.305		No
TBG01-3001-03.0-021	9/12/2002	0.638	pCi/g	0.216		No
TBG01-3002-02.0-025	9/11/2002	0.659	pCi/g	0.28		No
TBG01-3003-05.0-016	9/12/2002	0.55	pCi/g	0.205		No
TBG01-3004-02.0-000	9/13/2002	0.604	pCi/g	0.238		No
TBG01-3070-03.0-021	9/12/2002	0.533	pCi/g	0.232		No
TBG02-2857-02.0	5/22/2002	0.713	pCi/g	0.348		No
TBG02-2858-02.0	5/22/2002	5.23	pCi/g	4.39	J	Yes
TBG02-3015-04.5-001	9/16/2002	0.665	pCi/g	0.218		No
TBG02-3073-02.0-001	9/16/2002	0.647	pCi/g	0.349		No
TBG03-3018-01.0-011	9/14/2002	0.542	pCi/g	0.23		No
TBG03-3071-01.0-011	9/16/2002	703	pCi/g	1160	UJ	Yes
TBG03-3074-01.0-011	9/16/2002	1.06	pCi/g	0.66		No
TBG04-3025-01.0-010	9/13/2002	0.609	pCi/g	0.293		No
TBG04-3026-05.0-013	9/13/2002	0.856	pCi/g	0.314		No
TBG04-3027-04.0-027	9/13/2002	0.667	pCi/g	0.286		No
TBG04-3028-06.0-030	9/13/2002	1.03	pCi/g	0.406		No
TBG04-3029-04.0-040	9/13/2002	0.822	pCi/g	0.325		No
TBG05-3040-05.0-012	9/14/2002	0.603	pCi/g	0.254		No
TBG05-3041-10.0-014	9/14/2002	0.771	pCi/g	0.298		No
TBG05-3042-04.0-035	9/14/2002	0.56	pCi/g	0.28		No
TBG05-3043-03.0-045	9/14/2002	0.855	pCi/g	0.325		No
TBG05-3044-07.0-050	9/14/2002	0.873	pCi/g	0.346		No
TBG06-3056-02.0-035	9/15/2002	0.9	pCi/g	0.477		No
TBG06-3057-02.0-045	9/15/2002	0.936	pCi/g	0.523		No
TBG06-3058-01.0-070	9/15/2002	0.743	pCi/g	0.438		No
TSG06-3055-015	9/15/2002	0.621	pCi/g	0.402		No
TSG06-3059-085	9/15/2002	0.386	pCi/g	0.256		No
	Minimum	0.386				
	Maximum	703				
	Average	25.963				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Total Activity (Background Value = DL pCi/g)						
TBG01-3070-03.0-021	9/12/2002	77.5	pCi/g	15.1		Yes
TBG02-2857-02.0	5/22/2002	241	pCi/g	5.72		Yes
TBG02-2858-02.0	5/22/2002	117	pCi/g	3.42		Yes
TBG02-3072-02.0	5/22/2002	598	pCi/g	12.5		Yes
TBG02-3073-02.0-001	9/16/2002	55.9	pCi/g	12.1		Yes
TBG02-3076-02.0-001	9/16/2002	965	pCi/g	19.3		Yes
TBG03-3071-01.0-011	9/16/2002	1730000	pCi/g	24600		Yes
TBG03-3074-01.0-011	9/16/2002	7880	pCi/g	154		Yes
	Minimum	55.9				
	Maximum	1730000				
	Average	217492				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Uranium-233/234, Alpha (Background Value: TBG = 1.66 and TSG = 1.68 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	0.976	pCi/g	0.377		No
TBG01-3001-03.0-021	9/12/2002	0.844	pCi/g	0.365		No
TBG01-3003-05.0-016	9/12/2002	1.14	pCi/g	0.455		No
TBG01-3004-02.0-000	9/13/2002	0.754	pCi/g	0.349		No
TBG01-3070-03.0-021	9/12/2002	1.51	pCi/g	0.455		No
TBG02-2857-02.0	5/22/2002	1.9	pCi/g	0.488		Yes
TBG02-2858-02.0	5/22/2002	722	pCi/g	113	J	Yes
TBG02-3015-04.5-001	9/16/2002	0.95	pCi/g	0.365		No
TBG02-3073-02.0-001	9/16/2002	1.24	pCi/g	0.464		No
TBG02-3076-02.0-001	9/16/2002	2.69	pCi/g	0.663		Yes
TBG03-3018-01.0-011	9/14/2002	0.851	pCi/g	0.362		No
TBG03-3071-01.0-011	9/16/2002	24000	pCi/g	3890	J	Yes
TBG03-3074-01.0-011	9/16/2002	1.09	pCi/g	0.34		No
TBG04-3025-01.0-010	9/13/2002	0.472	pCi/g	0.28		No
TBG04-3026-05.0-013	9/13/2002	0.967	pCi/g	0.401		No
TBG04-3027-04.0-027	9/13/2002	0.595	pCi/g	0.282		No
TBG04-3028-06.0-030	9/13/2002	0.554	pCi/g	0.297		No
TBG04-3029-04.0-040	9/13/2002	0.451	pCi/g	0.285		No
TBG05-3040-05.0-012	9/14/2002	3.2	pCi/g	1.94		Yes
TBG05-3041-10.0-014	9/14/2002	0.872	pCi/g	0.365		No
TBG05-3042-04.0-035	9/14/2002	0.588	pCi/g	0.31		No
TBG05-3043-03.0-045	9/14/2002	1.21	pCi/g	0.495		No
TBG05-3044-07.0-050	9/14/2002	0.765	pCi/g	0.331		No
TBG06-3056-02.0-035	9/15/2002	0.765	pCi/g	0.352		No
TBG06-3057-02.0-045	9/15/2002	0.703	pCi/g	0.371		No
TSG06-3055-015	9/15/2002	0.576	pCi/g	0.32		No
TSG06-3059-085	9/15/2002	0.855	pCi/g	0.393		No
	Minimum	0.451				
	Maximum	24000				
	Average	917				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Uranium-235, Gamma (Background Value = 0.847 pCi/g)						
TBG02-2858-02.0	5/22/2002	133	pCi/g	23.3	J	Yes
TBG03-3018-01.0-011	9/14/2002	0.209	pCi/g	0.146		No
TBG03-3071-01.0-011	9/16/2002	1220	pCi/g	493	J	Yes
TBG06-3057-02.0-045	9/15/2002	0.115	pCi/g	0.107		No
TSG06-3059-085	9/15/2002	0.176	pCi/g	0.117		No
	Minimum	0.115				
	Maximum	1220				
	Average	271				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Uranium-235/236, Alpha (Background Value = 0.847 pCi/g)						
TBG02-2858-02.0	5/22/2002	55.6	pCi/g	15.2	J	Yes
TBG02-3076-02.0-001	9/16/2002	0.258	pCi/g	0.181		No
TBG03-3071-01.0-011	9/16/2002	2010	pCi/g	724	J	Yes
TBG06-3056-02.0-035	9/15/2002	0.244	pCi/g	0.187		No
	Minimum	0.244				
	Maximum	2010				
	Average	517				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Uranium-238, Alpha (Background Value = 1.34 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	0.714	pCi/g	0.316		No
TBG01-3001-03.0-021	9/12/2002	1.05	pCi/g	0.409		No
TBG01-3002-02.0-025	9/11/2002	0.889	pCi/g	0.366		No
TBG01-3003-05.0-016	9/12/2002	0.95	pCi/g	0.412		No
TBG01-3004-02.0-000	9/13/2002	0.664	pCi/g	0.331		No
TBG01-3070-03.0-021	9/12/2002	1.57	pCi/g	0.46		Yes
TBG02-2857-02.0	5/22/2002	1.69	pCi/g	0.452		Yes
TBG02-2858-02.0	5/22/2002	707	pCi/g	111	J	Yes
TBG02-3015-04.5-001	9/16/2002	0.798	pCi/g	0.326		No
TBG02-3073-02.0-001	9/16/2002	0.838	pCi/g	0.373		No
TBG02-3076-02.0-001	9/16/2002	2.16	pCi/g	0.573		Yes
TBG03-3018-01.0-011	9/14/2002	0.917	pCi/g	0.377		No
TBG03-3071-01.0-011	9/16/2002	24000	pCi/g	3890	J	Yes
TBG03-3074-01.0-011	9/16/2002	0.956	pCi/g	0.313		No
TBG04-3025-01.0-010	9/13/2002	1	pCi/g	0.407		No
TBG04-3026-05.0-013	9/13/2002	0.392	pCi/g	0.254		No
TBG04-3027-04.0-027	9/13/2002	1.01	pCi/g	0.371		No
TBG04-3028-06.0-030	9/13/2002	0.709	pCi/g	0.332		No
TBG04-3029-04.0-040	9/13/2002	0.637	pCi/g	0.309		No
TBG05-3040-05.0-012	9/14/2002	2.6	pCi/g	1.68		Yes
TBG05-3041-10.0-014	9/14/2002	1.12	pCi/g	0.413		No
TBG05-3042-04.0-035	9/14/2002	0.814	pCi/g	0.365		No
TBG05-3043-03.0-045	9/14/2002	0.974	pCi/g	0.43		No
TBG05-3044-07.0-050	9/14/2002	0.75	pCi/g	0.325		No
TBG06-3056-02.0-035	9/15/2002	0.73	pCi/g	0.343		No
TBG06-3057-02.0-045	9/15/2002	1.12	pCi/g	0.459		No
TBG06-3058-01.0-070	9/15/2002	0.767	pCi/g	0.34		No
TSG06-3055-015	9/15/2002	0.96	pCi/g	0.416		No
TSG06-3059-085	9/15/2002	0.855	pCi/g	0.393		No
	Minimum	0.392				
	Maximum	24000				
	Average	853				

Sample Number	Collection Date	Lab Result	Units	Uncertainty	Qualifier	SRC
Radiological Parameters						
Uranium-238, Gamma (Background Value = 1.36 pCi/g)						
TBG01-3000-06.0-050	9/11/2002	1.56	pCi/g	0.646		Yes
TBG01-3001-03.0-021	9/12/2002	1.53	pCi/g	0.566		Yes
TBG01-3003-05.0-016	9/12/2002	0.795	pCi/g	0.744		No
TBG01-3004-02.0-000	9/13/2002	1.8	pCi/g	0.994		Yes
TBG02-2857-02.0	5/22/2002	2.05	pCi/g	0.957		Yes
TBG02-2858-02.0	5/22/2002	1460	pCi/g	273	J	Yes
TBG03-3071-01.0-011	9/16/2002	19800	pCi/g	5500	J	Yes
TBG04-3025-01.0-010	9/13/2002	1.74	pCi/g	0.85		Yes
TBG04-3026-05.0-013	9/13/2002	2.01	pCi/g	1.41		Yes
TBG04-3027-04.0-027	9/13/2002	1.57	pCi/g	0.792		Yes
TBG04-3029-04.0-040	9/13/2002	0.809	pCi/g	0.645		No
TBG05-3040-05.0-012	9/14/2002	3.08	pCi/g	0.859		Yes
TBG05-3042-04.0-035	9/14/2002	1.12	pCi/g	1.04		No
TBG05-3043-03.0-045	9/14/2002	1.71	pCi/g	1.45		Yes
TBG06-3056-02.0-035	9/15/2002	1.16	pCi/g	1.13		No
TBG06-3057-02.0-045	9/15/2002	1.31	pCi/g	0.688		No
TSG06-3055-015	9/15/2002	2	pCi/g	0.693		Yes
TSG06-3059-085	9/15/2002	1.21	pCi/g	0.703		No
	Minimum	0.795				
	Maximum	19800				
	Average	1183				

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Aluminum (Background Value: TBG = 19100 and TSG = 18400 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	15300	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	24700	mg/kg		Yes
TBG01-3007-06.0-050	9/11/2002	18700	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	13200	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	17200	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	15300	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	16700	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	20300	mg/kg		Yes
TBG04-3032-04.0-040	9/13/2002	16300	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	37600	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	14000	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	16600	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	19900	mg/kg		Yes
TSG06-3060-015	9/15/2002	12100	mg/kg		No
TSG06-3062-085	9/15/2002	16100	mg/kg		No
	Minimum	12100			
	Maximum	37600			
	Average	18267			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Antimony (Background Value: = 0.94 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	0.51	mg/kg	UN	No
TBG01-3006-02.0-000	9/13/2002	0.5	mg/kg	UN	No
TBG01-3007-06.0-050	9/11/2002	0.54	mg/kg	UN	No
TBG01-3075-03.0-021	9/12/2002	0.52	mg/kg	UN	No
TBG02-3016-04.5-001	9/16/2002	0.583	mg/kg	BN	No
TBG03-3019-04.0-015	9/14/2002	0.54	mg/kg	UN	No
TBG04-3030-04.0-027	9/13/2002	0.51	mg/kg	UN	No
TBG04-3031-06.0-030	9/13/2002	0.5	mg/kg	UN	No
TBG04-3032-04.0-040	9/13/2002	0.5	mg/kg	UN	No
TBG05-3045-10.0-014	9/14/2002	1.1	mg/kg	UN	Yes
TBG05-3046-04.0-035	9/14/2002	0.48	mg/kg	UN	No
TBG05-3047-07.0-050	9/14/2002	0.53	mg/kg	UN	No
TBG06-3061-02.0-045	9/15/2002	0.54	mg/kg	UN	No
TSG06-3060-015	9/15/2002	0.52	mg/kg	UN	No
TSG06-3062-085	9/15/2002	0.54	mg/kg	UN	No
	Minimum	0.48			
	Maximum	1.10			
	Average	0.56			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Arsenic (Background Value: TBG = 8.73 and TSG = 11.3 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	1.91	mg/kg	*NE	No
TBG01-3006-02.0-000	9/13/2002	7.24	mg/kg	*NE	No
TBG01-3007-06.0-050	9/11/2002	1.51	mg/kg	*NE	No
TBG01-3075-03.0-021	9/12/2002	3.11	mg/kg	*NE	No
TBG02-3016-04.5-001	9/16/2002	2.36	mg/kg	*NE	No
TBG03-3019-04.0-015	9/14/2002	2.34	mg/kg	*NE	No
TBG04-3030-04.0-027	9/13/2002	1.74	mg/kg	*NE	No
TBG04-3031-06.0-030	9/13/2002	3.23	mg/kg	*NE	No
TBG04-3032-04.0-040	9/13/2002	2.74	mg/kg	*NE	No
TBG05-3045-10.0-014	9/14/2002	7.28	mg/kg	*NE	No
TBG05-3046-04.0-035	9/14/2002	3.25	mg/kg	*NE	No
TBG05-3047-07.0-050	9/14/2002	1.59	mg/kg	*NE	No
TBG06-3061-02.0-045	9/15/2002	3.38	mg/kg	*NE	No
TSG06-3060-015	9/15/2002	2.37	mg/kg	*NE	No
TSG06-3062-085	9/15/2002	1.87	mg/kg	*NE	No
	Minimum	1.51			
	Maximum	7.28			
	Average	3.06			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Barium (Background Value: TBG = 263 and TSG = 279 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	117	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	184	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	125	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	94.1	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	116	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	109	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	133	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	160	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	146	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	269	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	110	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	65.7	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	141	mg/kg		No
TSG06-3060-015	9/15/2002	72.7	mg/kg		No
TSG06-3062-085	9/15/2002	110	mg/kg		No
	Minimum	65.7			
	Maximum	269			
	Average	130			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Beryllium (Background Value = 1 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	0.636	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	1.11	mg/kg		Yes
TBG01-3007-06.0-050	9/11/2002	0.881	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	0.536	mg/kg	B	No
TBG02-3016-04.5-001	9/16/2002	0.737	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	0.614	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	0.536	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	0.939	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	0.718	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	1.85	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	0.611	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	0.801	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	0.868	mg/kg		No
TSG06-3060-015	9/15/2002	0.902	mg/kg		No
TSG06-3062-085	9/15/2002	0.644	mg/kg		No
	Minimum	0.536			
	Maximum	1.85			
	Average	0.83			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Boron (Background Value = 10.1 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	6.79	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	8.45	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	14.8	mg/kg		Yes
TBG01-3075-03.0-021	9/12/2002	4.82	mg/kg	B	No
TBG02-3016-04.5-001	9/16/2002	9.64	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	6.8	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	4.71	mg/kg	B	No
TBG04-3031-06.0-030	9/13/2002	9.57	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	7.57	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	26.6	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	5.56	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	13.5	mg/kg		Yes
TBG06-3061-02.0-045	9/15/2002	5.62	mg/kg		No
TSG06-3060-015	9/15/2002	3.16	mg/kg	B	No
TSG06-3062-085	9/15/2002	6.42	mg/kg		No
	Minimum	3.16			
	Maximum	26.6			
	Average	8.93			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Cadmium (Background Value = 0.53 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	0.33	mg/kg	B	No
TBG01-3006-02.0-000	9/13/2002	0.179	mg/kg	B	No
TBG01-3007-06.0-050	9/11/2002	0.196	mg/kg	B	No
TBG01-3075-03.0-021	9/12/2002	21.4	mg/kg		Yes
TBG02-3016-04.5-001	9/16/2002	0.282	mg/kg	B	No
TBG03-3019-04.0-015	9/14/2002	0.242	mg/kg	B	No
TBG04-3030-04.0-027	9/13/2002	0.192	mg/kg	B	No
TBG04-3031-06.0-030	9/13/2002	0.293	mg/kg	B	No
TBG04-3032-04.0-040	9/13/2002	0.289	mg/kg	B	No
TBG05-3045-10.0-014	9/14/2002	0.673	mg/kg	B	Yes
TBG05-3046-04.0-035	9/14/2002	0.123	mg/kg	B	No
TBG05-3047-07.0-050	9/14/2002	0.204	mg/kg	B	No
TBG06-3061-02.0-045	9/15/2002	0.148	mg/kg	B	No
TSG06-3060-015	9/15/2002	0.276	mg/kg	B	No
TSG06-3062-085	9/15/2002	0.216	mg/kg	B	No
	Minimum	0.123			
	Maximum	21.4			
	Average	1.67			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Calcium (Background Value: TBG = 58900 and TSG = 45200 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	19800	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	4060	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	58200	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	9020	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	33000	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	24900	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	1780	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	11200	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	17100	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	88400	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	17000	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	81100	mg/kg		Yes
TBG06-3061-02.0-045	9/15/2002	3610	mg/kg		No
TSG06-3060-015	9/15/2002	2360	mg/kg		No
TSG06-3062-085	9/15/2002	12000	mg/kg		No
	Minimum	1780			
	Maximum	88400			
	Average	25569			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Chromium (Background Value: TBG = 25.8 and TSG = 24.3 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	18.7	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	30.5	mg/kg		Yes
TBG01-3007-06.0-050	9/11/2002	27	mg/kg		Yes
TBG01-3075-03.0-021	9/12/2002	18.5	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	21.6	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	18.4	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	17.7	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	25	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	19.7	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	49.5	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	17.2	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	23.7	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	23.2	mg/kg		No
TSG06-3060-015	9/15/2002	15.5	mg/kg		No
TSG06-3062-085	9/15/2002	19.5	mg/kg		No
	Minimum	15.5			
	Maximum	49.5			
	Average	23.0			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Cobalt (Background Value = 36.7 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	7.28	mg/kg	*	No
TBG01-3006-02.0-000	9/13/2002	8.31	mg/kg	*	No
TBG01-3007-06.0-050	9/11/2002	12.4	mg/kg	*	No
TBG01-3075-03.0-021	9/12/2002	4.97	mg/kg	*	No
TBG02-3016-04.5-001	9/16/2002	7.81	mg/kg	*	No
TBG03-3019-04.0-015	9/14/2002	6.35	mg/kg	*	No
TBG04-3030-04.0-027	9/13/2002	4.86	mg/kg	*	No
TBG04-3031-06.0-030	9/13/2002	10.8	mg/kg	*	No
TBG04-3032-04.0-040	9/13/2002	9.79	mg/kg	*	No
TBG05-3045-10.0-014	9/14/2002	25.9	mg/kg	*	No
TBG05-3046-04.0-035	9/14/2002	8.01	mg/kg	*	No
TBG05-3047-07.0-050	9/14/2002	9.55	mg/kg	*	No
TBG06-3061-02.0-045	9/15/2002	6.12	mg/kg	*	No
TSG06-3060-015	9/15/2002	7.21	mg/kg	*	No
TSG06-3062-085	9/15/2002	6.13	mg/kg	*	No
	Minimum	4.9			
	Maximum	25.9			
	Average	9.0			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Copper (Background Value: TBG = 49.3 and TSG = 34.7 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	25.4	mg/kg	N	No
TBG01-3006-02.0-000	9/13/2002	59.9	mg/kg	N	Yes
TBG01-3007-06.0-050	9/11/2002	32	mg/kg	N	No
TBG01-3075-03.0-021	9/12/2002	43.7	mg/kg	N	No
TBG02-3016-04.5-001	9/16/2002	25.5	mg/kg	N	No
TBG03-3019-04.0-015	9/14/2002	25	mg/kg	N	No
TBG04-3030-04.0-027	9/13/2002	19.6	mg/kg	N	No
TBG04-3031-06.0-030	9/13/2002	50.9	mg/kg	N	Yes
TBG04-3032-04.0-040	9/13/2002	35.7	mg/kg	N	No
TBG05-3045-10.0-014	9/14/2002	67.4	mg/kg	N	Yes
TBG05-3046-04.0-035	9/14/2002	54.5	mg/kg	N	Yes
TBG05-3047-07.0-050	9/14/2002	25.4	mg/kg	N	No
TBG06-3061-02.0-045	9/15/2002	24.2	mg/kg	N	No
TSG06-3060-015	9/15/2002	27.7	mg/kg	N	No
TSG06-3062-085	9/15/2002	20.8	mg/kg	N	No
	Minimum	19.6			
	Maximum	67.4			
	Average	35.8			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Iron (Background Value = 36.4 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	22200	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	34400	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	30600	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	49400	mg/kg		Yes
TBG02-3016-04.5-001	9/16/2002	24500	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	21800	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	18300	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	31700	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	25600	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	57600	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	26400	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	28700	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	23100	mg/kg		No
TSG06-3060-015	9/15/2002	43100	mg/kg		Yes
TSG06-3062-085	9/15/2002	20600	mg/kg		No
	Minimum	18300			
	Maximum	57600			
	Average	30533			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Lead (Background Value: TBG = 37.6 and TSG = 55.2 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	22	mg/kg	N	No
TBG01-3006-02.0-000	9/13/2002	8.1	mg/kg	N	No
TBG01-3007-06.0-050	9/11/2002	5.92	mg/kg	N	No
TBG01-3075-03.0-021	9/12/2002	138	mg/kg	N	Yes
TBG02-3016-04.5-001	9/16/2002	11.6	mg/kg	N	No
TBG03-3019-04.0-015	9/14/2002	9.99	mg/kg	N	No
TBG04-3030-04.0-027	9/13/2002	9.24	mg/kg	N	No
TBG04-3031-06.0-030	9/13/2002	9.81	mg/kg	N	No
TBG04-3032-04.0-040	9/13/2002	15.3	mg/kg	N	No
TBG05-3045-10.0-014	9/14/2002	35.3	mg/kg	N	No
TBG05-3046-04.0-035	9/14/2002	5.64	mg/kg	N	No
TBG05-3047-07.0-050	9/14/2002	5.16	mg/kg	N	No
TBG06-3061-02.0-045	9/15/2002	9.43	mg/kg	N	No
TSG06-3060-015	9/15/2002	14	mg/kg	N	No
TSG06-3062-085	9/15/2002	19.5	mg/kg	N	No
	Minimum	5.16			
	Maximum	138			
	Average	21.3			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Lithium (Background Value: TBG = 36.8 and TSG = 27.9 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	23.1	mg/kg	E	No
TBG01-3006-02.0-000	9/13/2002	29.3	mg/kg	E	No
TBG01-3007-06.0-050	9/11/2002	24.7	mg/kg	E	No
TBG01-3075-03.0-021	9/12/2002	20.2	mg/kg	E	No
TBG02-3016-04.5-001	9/16/2002	23.6	mg/kg	E	No
TBG03-3019-04.0-015	9/14/2002	20.8	mg/kg	E	No
TBG04-3030-04.0-027	9/13/2002	17.3	mg/kg	E	No
TBG04-3031-06.0-030	9/13/2002	27.6	mg/kg	E	No
TBG04-3032-04.0-040	9/13/2002	18.7	mg/kg	E	No
TBG05-3045-10.0-014	9/14/2002	47.6	mg/kg	E	Yes
TBG05-3046-04.0-035	9/14/2002	24.7	mg/kg	E	No
TBG05-3047-07.0-050	9/14/2002	21.6	mg/kg	E	No
TBG06-3061-02.0-045	9/15/2002	21.4	mg/kg	E	No
TSG06-3060-015	9/15/2002	27	mg/kg	E	No
TSG06-3062-085	9/15/2002	20.8	mg/kg	E	No
	Minimum	17.3			
	Maximum	47.6			
	Average	24.6			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Magnesium (Background Value: TBG = 14.8 and TSG = 10.2 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	5750	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	7370	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	13300	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	3860	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	8500	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	6540	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	3150	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	7310	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	5980	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	26000	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	6010	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	12500	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	4950	mg/kg		No
TSG06-3060-015	9/15/2002	2840	mg/kg		No
TSG06-3062-085	9/15/2002	5150	mg/kg		No
	Minimum	2840			
	Maximum	26000			
	Average	7947			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Mangamese (Background Value: TBG = 6650 and TSG = 5630 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	449	mg/kg	*	No
TBG01-3006-02.0-000	9/13/2002	243	mg/kg	*	No
TBG01-3007-06.0-050	9/11/2002	847	mg/kg	*	No
TBG01-3075-03.0-021	9/12/2002	307	mg/kg	*	No
TBG02-3016-04.5-001	9/16/2002	565	mg/kg	*	No
TBG03-3019-04.0-015	9/14/2002	450	mg/kg	*	No
TBG04-3030-04.0-027	9/13/2002	302	mg/kg	*	No
TBG04-3031-06.0-030	9/13/2002	785	mg/kg	*	No
TBG04-3032-04.0-040	9/13/2002	819	mg/kg	*	No
TBG05-3045-10.0-014	9/14/2002	2010	mg/kg	*	No
TBG05-3046-04.0-035	9/14/2002	916	mg/kg	*	No
TBG05-3047-07.0-050	9/14/2002	738	mg/kg	*	No
TBG06-3061-02.0-045	9/15/2002	170	mg/kg	*	No
TSG06-3060-015	9/15/2002	527	mg/kg	*	No
TSG06-3062-085	9/15/2002	292	mg/kg	*	No
	Minimum	170			
	Maximum	2010			
	Average	628			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Mercury (Background Value = 0.27 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	0.042	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	0.032	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	0.01	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	0.167	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	0.027	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	0.035	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	0.041	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	0.034	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	0.061	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	0.063	mg/kg		No
TBG05-3046-04.0-035	9/14/2002	0.015	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	0.01	mg/kg	B	No
TBG06-3061-02.0-045	9/15/2002	0.064	mg/kg		No
TSG06-3060-015	9/15/2002	0.037	mg/kg		No
TSG06-3062-085	9/15/2002	0.04	mg/kg		No
	Minimum	0.010			
	Maximum	0.167			
	Average	0.045			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Nickel (Background Value: TBG = 38 and TSg = 37.5 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	17.4	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	24.6	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	27.8	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	22.9	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	19.9	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	16.1	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	13	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	25.3	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	19.9	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	56.7	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	19.3	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	23.1	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	20.8	mg/kg		No
TSG06-3060-015	9/15/2002	12.8	mg/kg		No
TSG06-3062-085	9/15/2002	16.6	mg/kg		No
	Minimum	12.8			
	Maximum	56.7			
	Average	22.4			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Potassium (Background Value: TBG = 2860 and TSg = 1820 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	1930	mg/kg	E	No
TBG01-3006-02.0-000	9/13/2002	2600	mg/kg	E	No
TBG01-3007-06.0-050	9/11/2002	4420	mg/kg	E	Yes
TBG01-3075-03.0-021	9/12/2002	1570	mg/kg	E	No
TBG02-3016-04.5-001	9/16/2002	2800	mg/kg	E	No
TBG03-3019-04.0-015	9/14/2002	1860	mg/kg	E	No
TBG04-3030-04.0-027	9/13/2002	1400	mg/kg	E	No
TBG04-3031-06.0-030	9/13/2002	3090	mg/kg	E	Yes
TBG04-3032-04.0-040	9/13/2002	2420	mg/kg	E	No
TBG05-3045-10.0-014	9/14/2002	8300	mg/kg	E	Yes
TBG05-3046-04.0-035	9/14/2002	2130	mg/kg	E	No
TBG05-3047-07.0-050	9/14/2002	3960	mg/kg	E	Yes
TBG06-3061-02.0-045	9/15/2002	2300	mg/kg	E	No
TSG06-3060-015	9/15/2002	1420	mg/kg	E	No
TSG06-3062-085	9/15/2002	2050	mg/kg	E	Yes
	Minimum	1400			
	Maximum	8300			
	Average	2817			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Selenium (Background Value = 0.37 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	0.141	mg/kg	BN	No
TBG01-3006-02.0-000	9/13/2002	0.286	mg/kg	BN	No
TBG01-3007-06.0-050	9/11/2002	0.178	mg/kg	BN	No
TBG01-3075-03.0-021	9/12/2002	0.394	mg/kg	BN	Yes
TBG02-3016-04.5-001	9/16/2002	0.171	mg/kg	BN	No
TBG03-3019-04.0-015	9/14/2002	0.258	mg/kg	BN	No
TBG04-3030-04.0-027	9/13/2002	0.198	mg/kg	BN	No
TBG04-3031-06.0-030	9/13/2002	0.2	mg/kg	BN	No
TBG04-3032-04.0-040	9/13/2002	0.198	mg/kg	BN	No
TBG05-3045-10.0-014	9/14/2002	0.466	mg/kg	BN	Yes
TBG05-3046-04.0-035	9/14/2002	0.176	mg/kg	BN	No
TBG05-3047-07.0-050	9/14/2002	0.199	mg/kg	BN	No
TBG06-3061-02.0-045	9/15/2002	0.217	mg/kg	BN	No
TSG06-3060-015	9/15/2002	0.241	mg/kg	BN	No
TSG06-3062-085	9/15/2002	0.2	mg/kg	BN	No
	Minimum	0.141			
	Maximum	0.466			
	Average	0.235			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Silver (Background Value = 0.27 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	0.06	mg/kg	B	No
TBG01-3006-02.0-000	9/13/2002	0.093	mg/kg	B	No
TBG01-3007-06.0-050	9/11/2002	0.07	mg/kg	B	No
TBG01-3075-03.0-021	9/12/2002	0.312	mg/kg		Yes
TBG02-3016-04.5-001	9/16/2002	0.08	mg/kg	B	No
TBG03-3019-04.0-015	9/14/2002	0.059	mg/kg	B	No
TBG04-3030-04.0-027	9/13/2002	0.039	mg/kg	B	No
TBG04-3031-06.0-030	9/13/2002	0.082	mg/kg	B	No
TBG04-3032-04.0-040	9/13/2002	0.055	mg/kg	B	No
TBG05-3045-10.0-014	9/14/2002	0.146	mg/kg	B	No
TBG05-3046-04.0-035	9/14/2002	0.062	mg/kg	B	No
TBG05-3047-07.0-050	9/14/2002	0.053	mg/kg	B	No
TBG06-3061-02.0-045	9/15/2002	0.051	mg/kg	B	No
TSG06-3060-015	9/15/2002	0.057	mg/kg	B	No
TSG06-3062-085	9/15/2002	0.084	mg/kg	B	No
	Minimum	0.039			
	Maximum	0.312			
	Average	0.087			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Sodium (Background Value: TBG = 331 and TSG = 286 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	102	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	145	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	300	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	69.9	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	136	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	115	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	113	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	157	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	139	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	475	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	131	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	232	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	90.2	mg/kg		No
TSG06-3060-015	9/15/2002	51.9	mg/kg		No
TSG06-3062-085	9/15/2002	96.1	mg/kg		No
	Minimum	51.9			
	Maximum	475			
	Average	157			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Thallium (Background Value = DL mg/kg)					
TBG01-3005-03.0-021	9/12/2002	0.154	mg/kg		Yes
TBG01-3006-02.0-000	9/13/2002	0.127	mg/kg		Yes
TBG01-3007-06.0-050	9/11/2002	0.214	mg/kg		Yes
TBG01-3075-03.0-021	9/12/2002	0.12	mg/kg		Yes
TBG02-3016-04.5-001	9/16/2002	0.123	mg/kg		Yes
TBG03-3019-04.0-015	9/14/2002	0.135	mg/kg		Yes
TBG04-3030-04.0-027	9/13/2002	0.124	mg/kg		Yes
TBG04-3031-06.0-030	9/13/2002	0.128	mg/kg		Yes
TBG04-3032-04.0-040	9/13/2002	0.107	mg/kg	B	Yes
TBG05-3045-10.0-014	9/14/2002	0.283	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	0.097	mg/kg	B	Yes
TBG05-3047-07.0-050	9/14/2002	0.111	mg/kg	B	Yes
TBG06-3061-02.0-045	9/15/2002	0.098	mg/kg	B	Yes
TSG06-3060-015	9/15/2002	0.121	mg/kg		Yes
TSG06-3062-085	9/15/2002	0.198	mg/kg		Yes
	Minimum	0.097			
	Maximum	0.283			
	Average	0.143			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Vanadium (Background Value: TBG = 35.2 and TSG = 34 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	29.7	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	48.2	mg/kg		Yes
TBG01-3007-06.0-050	9/11/2002	40.2	mg/kg		Yes
TBG01-3075-03.0-021	9/12/2002	24.1	mg/kg		No
TBG02-3016-04.5-001	9/16/2002	32.7	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	29	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	27.7	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	38.6	mg/kg		Yes
TBG04-3032-04.0-040	9/13/2002	32.6	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	74.4	mg/kg		Yes
TBG05-3046-04.0-035	9/14/2002	27.9	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	33.3	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	32.6	mg/kg		No
TSG06-3060-015	9/15/2002	36.7	mg/kg		Yes
TSG06-3062-085	9/15/2002	28	mg/kg		No
	Minimum	24.1			
	Maximum	74.4			
	Average	35.7			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Metal Parameters					
Zinc (Background Value: TBG = 266 and TSG = 78 mg/kg)					
TBG01-3005-03.0-021	9/12/2002	99.6	mg/kg		No
TBG01-3006-02.0-000	9/13/2002	61.6	mg/kg		No
TBG01-3007-06.0-050	9/11/2002	54.6	mg/kg		No
TBG01-3075-03.0-021	9/12/2002	10100	mg/kg		Yes
TBG02-3016-04.5-001	9/16/2002	112	mg/kg		No
TBG03-3019-04.0-015	9/14/2002	52.9	mg/kg		No
TBG04-3030-04.0-027	9/13/2002	53.5	mg/kg		No
TBG04-3031-06.0-030	9/13/2002	72.5	mg/kg		No
TBG04-3032-04.0-040	9/13/2002	60.6	mg/kg		No
TBG05-3045-10.0-014	9/14/2002	142	mg/kg		No
TBG05-3046-04.0-035	9/14/2002	47.4	mg/kg		No
TBG05-3047-07.0-050	9/14/2002	52.9	mg/kg		No
TBG06-3061-02.0-045	9/15/2002	53.1	mg/kg		No
TSG06-3060-015	9/15/2002	59.2	mg/kg		No
TSG06-3062-085	9/15/2002	58	mg/kg		No
	Minimum	47.4			
	Maximum	10100			
	Average	739			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
PCB Parameters					
Aroclor-1242 (Background Value = DL ug/kg)					
TBG05-3045-10.0-014	9/14/2002	22.7	ug/kg	P	Yes
TBG05-3046-04.0-035	9/14/2002	7.9	ug/kg	P	Yes
	Minimum	7.9			
	Maximum	22.7			
	Average	15.3			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
PCB Parameters					
Aroclor-1260 (Background Value = DL ug/kg)					
TBG01-3005-03.0-021	9/12/2002	4.1	ug/kg	P	Yes
TBG02-3016-04.5-001	9/16/2002	2.7	ug/kg	J	Yes
TBG03-3019-04.0-015	9/14/2002	5.3	ug/kg		Yes
TBG04-3032-04.0-040	9/13/2002	3.4	ug/kg	JP	Yes
TBG05-3045-10.0-014	9/14/2002	5.1	ug/kg	J	Yes
TBG06-3061-02.0-045	9/15/2002	1.5	ug/kg	J	Yes
TSG06-3062-085	9/15/2002	4	ug/kg		Yes
	Minimum	1.5			
	Maximum	5.3			
	Average	3.7			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
4,4'-DDD (Background Value = DL ug/kg)					
TBG01-3005-03.0-021	9/12/2002	1.1	ug/kg	JP	Yes
TBG01-3075-03.0-021	9/12/2002	55.6	ug/kg		Yes
TBG01-3075-03.0-021	9/12/2002	63.3	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	1.6	ug/kg	J	Yes
TBG02-3016-04.5-001	9/16/2002	1.5	ug/kg	J	Yes
TBG03-3019-04.0-015	9/14/2002	0.62	ug/kg	J	Yes
TBG03-3019-04.0-015	9/14/2002	0.6	ug/kg	J	Yes
TBG04-3030-04.0-027	9/13/2002	0.68	ug/kg	JP	Yes
TBG04-3030-04.0-027	9/13/2002	0.7	ug/kg	JP	Yes
TSG06-3060-015	9/15/2002	3.4	ug/kg	P	Yes
	Minimum	0.60			
	Maximum	63.3			
	Average	12.9			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
4,4'-DDE (Background Value = DL ug/kg)					
TBG01-3005-03.0-021	9/12/2002	0.85	ug/kg	J	Yes
TBG01-3006-02.0-000	9/13/2002	0.53	ug/kg	J	Yes
TBG01-3075-03.0-021	9/12/2002	34.4	ug/kg		Yes
TBG01-3075-03.0-021	9/12/2002	30.4	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	4.8	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	4.4	ug/kg		Yes
TBG03-3019-04.0-015	9/14/2002	1.3	ug/kg	J	Yes
TBG03-3019-04.0-015	9/14/2002	1.4	ug/kg	J	Yes
TBG04-3030-04.0-027	9/13/2002	1.9	ug/kg		Yes
TBG04-3030-04.0-027	9/13/2002	1.9	ug/kg		Yes
TBG04-3031-06.0-030	9/13/2002	0.9	ug/kg	J	Yes
TBG04-3032-04.0-040	9/13/2002	1.2	ug/kg	J	Yes
TBG05-3045-10.0-014	9/14/2002	4	ug/kg	P	Yes
TSG06-3060-015	9/15/2002	1.1	ug/kg	JP	Yes
TSG06-3062-085	9/15/2002	0.73	ug/kg	JP	Yes
	Minimum	0.53			
	Maximum	34.4			
	Average	6.0			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
4,4'-DDT (Background Value = DL ug/kg)					
TBG01-3005-03.0-021	9/12/2002	0.9	ug/kg	JP	Yes
TBG01-3006-02.0-000	9/13/2002	0.87	ug/kg	JP	Yes
TBG01-3075-03.0-021	9/12/2002	17.5	ug/kg		Yes
TBG01-3075-03.0-021	9/12/2002	13.9	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	5.2	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	3.4	ug/kg		Yes
TBG03-3019-04.0-015	9/14/2002	4.8	ug/kg	P	Yes
TBG03-3019-04.0-015	9/14/2002	5.1	ug/kg	P	Yes
TBG04-3030-04.0-027	9/13/2002	9.1	ug/kg		Yes
TBG04-3030-04.0-027	9/13/2002	6.4	ug/kg		Yes
TBG04-3031-06.0-030	9/13/2002	0.91	ug/kg	J	Yes
TBG04-3032-04.0-040	9/13/2002	1.2	ug/kg	JP	Yes
TBG05-3045-10.0-014	9/14/2002	5	ug/kg	P	Yes
TBG05-3046-04.0-035	9/14/2002	0.66	ug/kg	J	Yes
TSG06-3060-015	9/15/2002	1.2	ug/kg	J	Yes
TSG06-3062-085	9/15/2002	1.2	ug/kg	J	Yes
	Minimum	0.66			
	Maximum	17.5			
	Average	4.8			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
Aldrin (Background Value = DL ug/kg)					
TBG05-3045-10.0-014	9/14/2002	32.6	ug/kg		Yes
	Minimum	32.6			
	Maximum	32.6			
	Average	32.6			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
alpha-BHC (Background Value = DL ug/kg)					
TBG05-3045-10.0-014	9/14/2002	11.5	ug/kg		Yes
	Minimum	11.5			
	Maximum	11.5			
	Average	11.5			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
alpha-Chlordane (Background Value = DL ug/kg)					
TBG01-3075-03.0-021	9/12/2002	29.1	ug/kg	P	Yes
TBG01-3075-03.0-021	9/12/2002	21.1	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	0.33	ug/kg	JP	Yes
	Minimum	0.33			
	Maximum	29.1			
	Average	16.8			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
Dieldrin (Background Value = DL ug/kg)					
TBG04-3030-04.0-027	9/13/2002	0.43	ug/kg	JP	Yes
TBG04-3030-04.0-027	9/13/2002	0.48	ug/kg	JP	Yes
TBG05-3045-10.0-014	9/14/2002	3.2	ug/kg	J	Yes
	Minimum	0.43			
	Maximum	3.2			
	Average	1.4			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
Endosulfan I (Background Value = DL ug/kg)					
TBG05-3045-10.0-014	9/14/2002	2.8	ug/kg	P	Yes
	Minimum	2.8			
	Maximum	2.8			
	Average	2.8			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
gamma-BHC (Lindane) (Background Value = DL ug/kg)					
TBG05-3045-10.0-014	9/14/2002	17.7	ug/kg		Yes
	Minimum	17.7			
	Maximum	17.7			
	Average	17.7			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
gamma-Chlordane (Background Value = DL ug/kg)					
TBG01-3075-03.0-021	9/12/2002	22	ug/kg		Yes
TBG01-3075-03.0-021	9/12/2002	24.2	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	0.66	ug/kg	J	Yes
TBG02-3016-04.5-001	9/16/2002	0.27	ug/kg	JP	Yes
	Minimum	0.27			
	Maximum	24.2			
	Average	11.8			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Pesticide Parameters					
Methoxychlor (Background Value = DL ug/kg)					
TBG01-3075-03.0-021	9/12/2002	3.3	ug/kg	JP	Yes
TBG01-3075-03.0-021	9/12/2002	3	ug/kg	JP	Yes
	Minimum	3			
	Maximum	3.3			
	Average	3.2			

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Semi-Volatile Organic Parameters					
Benzoic Acid (Background Value = DL ug/kg)					
TBG05-3047-07.0-050	9/14/2002	442	ug/kg	J	Yes
	Minimum	442			
	Maximum	442			
	Average	442			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Semi-Volatile Organic Parameters					
bis(2-Ethylhexyl)phthalate (Background Value = 5130 ug/kg)					
TBG01-3005-03.0-021	9/12/2002	92.5	ug/kg	J	No
	Minimum	92.5			
	Maximum	92.5			
	Average	92.5			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Semi-Volatile Organic Parameters					
Pyrene (Background Value = 716 ug/kg)					
TBG01-3075-03.0-021	9/12/2002	159	ug/kg		No
TBG06-3061-02.0-045	9/15/2002	156	ug/kg		No
TSG06-3060-015	9/15/2002	148	ug/kg		No
TSG06-3062-085	9/15/2002	152	ug/kg		No
	Minimum	148			
	Maximum	159			
	Average	154			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Volatile Organic Parameters					
Acetone (Background Value = DL ug/kg)					
TBG01-3006-02.0-000	9/13/2002	9.3	ug/kg		Yes
TBG01-3007-06.0-050	9/11/2002	4.5	ug/kg		Yes
TBG02-3016-04.5-001	9/16/2002	11.7	ug/kg		Yes
TBG03-3019-04.0-015	9/14/2002	6.4	ug/kg		Yes
TBG04-3030-04.0-027	9/13/2002	8.1	ug/kg		Yes
TBG05-3046-04.0-035	9/14/2002	12.5	ug/kg		Yes
TSG06-3060-015	9/15/2002	11.8	ug/kg		Yes
	Minimum	4.5			
	Maximum	12.5			
	Average	9.2			

Sample Number	Collection Date	Lab Result	Units	Qualifier	SRC
Volatile Organic Parameters					
Toluene (Background Value = DL ug/kg)					
TBG02-3016-04.5-001	9/16/2002	0.75	ug/kg	J	Yes
	Minimum	0.75			
	Maximum	0.75			
	Average	0.75			

Radiological Data Qualifiers

J - nuclide identified; the associated numerical value is approximated

UJ - nuclide not detected above the reported MDC or 2 sigma counting uncertainty and a quality deficiency affects the data making the reported data more uncertain

UUI - results are non-detected, however, there is interference and results are probably biased low.

Organic Compound Qualifiers

J - Indicates an estimated value

P - this flag is used for a pesticide/aroclor target analyte where there is greater than 25% difference for detected concentrations between the two GC columns.

Table 7
Summary of Chemical and Radiological Parameters
Detected in Samples and Identification of SRCS
Vicinity Property G

Inorganic Compound Qualifiers

B - this flag is used where the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the user to take appropriate action.
E - the reported value is estimated because of the presence of interferrence
N - spiked sample recovery not within controil limits
U - indicates compound was analyzed for but not detected
* - duplicate analysis not within control limits

Sample Naming Convention

TBGYY - #### - XX.X – XXX
Where:
TBG - subsurface soil sample collected at VPG
YY - trench number (01 – 06)
- a unique four digit sample number
XX.X - sample depth in feet to the nearest 0.1 feet
XXX - distance from the “A” (north or west) end to the nearest foot
TSG - surface soil sample collected at VPG
TSG - samples do not have an XX.X designation because their depth is within the top 0.5 foot

Table 8
Trench Locations and Depths of Detections of Chemical Site Related Compounds
Vicinity Property G

Parameter	Trench	Depth (feet)	Lab Result	Units	Lab Qualifier
Aluminum	TBG01	2	24700	mg/kg	
	TBG04	6	20300	mg/kg	
	TBG05	10	37600	mg/kg	
	TBG06	2	19900	mg/kg	
Barium	TBG05	10	269	mg/kg	
Beryllium	TBG05	10	1.85	mg/kg	
	TBG01	2	1.11	mg/kg	
Boron	TBG01	6	14.8	mg/kg	
	TBG05	10	26.6	mg/kg	
	TBG05	7	13.5	mg/kg	
Cadmium	TBG01	3	21.4	mg/kg	
	TBG05	10	0.67	mg/kg	B
Calcium	TBG05	7	81100	mg/kg	
	TBG05	10	88400	mg/kg	
Chromium	TBG01	2	30.5	mg/kg	
	TBG01	6	27	mg/kg	
	TBG05	10	49.5	mg/kg	
Copper	TBG01	2	59.9	mg/kg	N
	TBG04	6	50.9	mg/kg	N
	TBG05	10	67.4	mg/kg	N
	TBG05	4	54.5	mg/kg	N
Iron	TBG01	3	49400	mg/kg	
	TBG05	10	57600	mg/kg	
	TSG06	0	43100	mg/kg	
Lead	TBG01	3	138	mg/kg	N
Lithium	TBG05	10	47.6	mg/kg	E
Magnesium	TBG05	10	26000	mg/kg	
Nickel	TBG05	10	56.7	mg/kg	
Potassium	TBG01	6	4420	mg/kg	E
	TBG04	6	3090	mg/kg	E
	TBG05	10	8300	mg/kg	E
	TBG05	7	3960	mg/kg	E
	TSG06	0	2050	mg/kg	E
Selenium	TBG01	3	0.394	mg/kg	BN
	TBG05	10	0.466	mg/kg	BN
Silver	TBG01	3	0.312	mg/kg	
Sodium	TBG05	10	475	mg/kg	
Thallium	TBG01	3	0.154	mg/kg	
	TBG01	2	0.127	mg/kg	
	TBG01	6	0.214	mg/kg	
	TBG01	3	0.12	mg/kg	
	TBG02	4.5	0.123	mg/kg	
	TBG03	4	0.135	mg/kg	
	TBG04	4	0.124	mg/kg	
	TBG04	4	0.107	mg/kg	B
	TBG04	6	0.128	mg/kg	
	TBG05	10	0.283	mg/kg	
	TBG05	4	0.097	mg/kg	B
	TBG05	7	0.111	mg/kg	B
	TBG06	2	0.098	mg/kg	B
	TSG06	0	0.121	mg/kg	
	TSG06	0	0.198	mg/kg	
Vanadium	TBG01	2	48.2	mg/kg	
	TBG01	6	40.2	mg/kg	
	TBG04	6	38.6	mg/kg	
	TBG05	10	74.4	mg/kg	
	TSG06	0	36.7	mg/kg	
Zinc	TBG01	3	10100	mg/kg	

Table 8
Trench Locations and Depths of Detections of Chemical Site Related Compounds
Vicinity Property G

Parameter	Trench	Depth (feet)	Lab Result	Units	Lab Qualifier
Aroclor-1242	TBG05	10	22.7	ug/kg	P
	TBG05	4	7.9	ug/kg	P
Aroclor-1260	TBG01	3	4.1	ug/kg	P
	TBG02	4.5	2.7	ug/kg	J
	TBG03	4	5.3	ug/kg	
	TBG04	4	3.4	ug/kg	JP
	TBG05	10	5.1	ug/kg	J
	TBG06	2	1.5	ug/kg	J
	TSG06	0	4	ug/kg	
4,4'-DDD	TBG01	3	1.1	ug/kg	JP
	TBG01	3	55.6	ug/kg	
	TBG02	4.5	1.5	ug/kg	J
	TBG03	4	0.62	ug/kg	J
	TBG04	4	0.7	ug/kg	JP
	TSG06	0	3.4	ug/kg	P
4,4'-DDE	TBG01	3	0.85	ug/kg	J
	TBG01	2	0.53	ug/kg	J
	TBG01	3	30.4	ug/kg	
	TBG02	4.5	4.4	ug/kg	
	TBG03	4	1.3	ug/kg	J
	TBG04	4	1.9	ug/kg	
	TBG04	6	0.9	ug/kg	J
	TBG04	4	1.2	ug/kg	J
	TBG05	10	4	ug/kg	P
	TSG06	0	1.1	ug/kg	JP
	TSG06	0	0.73	ug/kg	JP
4,4'-DDT	TBG01	3	0.9	ug/kg	JP
	TBG01	2	0.87	ug/kg	JP
	TBG01	3	13.9	ug/kg	
	TBG02	4.5	3.4	ug/kg	
	TBG03	4	4.8	ug/kg	P
	TBG04	4	6.4	ug/kg	
	TBG04	6	0.91	ug/kg	J
	TBG04	4	1.2	ug/kg	JP
	TBG05	10	5	ug/kg	P
	TBG05	4	0.66	ug/kg	J
	TSG06	0	1.2	ug/kg	J
	TSG06	0	1.2	ug/kg	J
Aldrin	TBG05	10	32.6	ug/kg	
alpha-BHC	TBG05	10	11.5	ug/kg	
alpha-Chlordane	TBG01	3	29.1	ug/kg	P
	TBG02	4.5	0.33	ug/kg	JP
Dieldrin	TBG04	4	0.43	ug/kg	JP
	TBG05	10	3.2	ug/kg	J
Endosulfan I	TBG05	10	2.8	ug/kg	P
gamma-BHC (Lindane)	TBG05	10	17.7	ug/kg	
gamma-Chlordane	TBG01	3	22	ug/kg	
	TBG02	4.5	0.27	ug/kg	JP
Methoxychlor	TBG01	3	3	ug/kg	JP
Benzoic Acid	TBG05	7	442	ug/kg	J
Acetone	TBG01	2	9.3	ug/kg	
	TBG01	6	4.5	ug/kg	
	TBG02	4.5	11.7	ug/kg	
	TBG03	4	6.4	ug/kg	
	TBG04	4	8.1	ug/kg	
	TBG05	4	12.5	ug/kg	
	TSG06	0	11.8	ug/kg	
Toluene	TBG02	4.5	0.75	ug/kg	J

Table 9
Trench Locations and Depths of Detections of Radiological Site Related Compounds
Vicinity Property G

Parameter	Trench	Depth (feet)	Lab Result (pCi/g)	Uncertainty (pCi/g)
Actinium-227	TBG02	2	123	20
	TBG03	1	1100	733
Alpha	TBG01	3	78.7	10.8
	TBG02	2	184	9.38
	TBG02	2	12200	74.1
	TBG02	4.5	68.8	7.62
	TBG02	2	119	9.58
	TBG02	2	45.4	3.05
	TBG03	1	16.5	3.81
	TBG03	1	5.95E+05	10800
	TBG03	1	5730	272
	TBG05	5	19.7	4.02
	TSG06	0	10.9	2.92
	TSG06	0	14.7	2.83
Beta	TBG01	3	104	9.01
	TBG02	2	123	4.57
	TBG02	2	6330	32
	TBG02	4.5	54.7	4.94
	TBG02	2	82.3	5.93
	TBG03	1	4.25E+05	7430
	TBG03	1	2000	108
	TSG06	0	21.9	2.98
	TSG06	0	19.1	2.88
Cesium-137	TBG02	2	0.493	0.23
Plutonium-239/240	ACG01	1	8.08	1.21
	LDG01	3	1.34	0.299
	LDG02	3	2.23	0.466
	TBG01	3	0.498	0.267
	TBG02	2	17.6	1.82
	TBG02	4.5	0.409	0.239
	TBG02	2	0.481	0.28
	TBG02	2	2.42	0.357
Protactinium-231	TBG02	2	108	20.8
Radium-226	TBG01	3	25.8	2.83
	TBG02	2	34.5	4.22
	TBG02	2	15	0.851
	TBG02	2	1980	236
	TBG02	4.5	10.4	1.29
	TBG02	2	17.7	2.2
	TBG03	1	2.36	0.296
	TBG03	1	74800	8420
	TBG03	1	1660	220

Table 9
Trench Locations and Depths of Detections of Radiological Site Related Compounds
Vicinity Property G

Parameter	Trench	Depth (feet)	Lab Result (pCi/g)	Uncertainty (pCi/g)
Radium-228	TG01	3	0.137	0.0676
Strontium-90	TBG01	3	27.1	1.55
	TBG02	2	10.3	0.815
	TBG02	2	8.56	0.692
	TBG02	4.5	1.37	0.539
	TBG02	2	1.62	0.69
	TBG02	2	2.82	0.466
	TBG03	1	225	4.63
	TBG03	1	2.9	0.67
Thorium-230	TBG02	2	1040	311
	TBG01	3	0.268	0.156
	TBG01	3	0.581	0.276
	TBG03	1	45700	14800
	TBG03	1	2.04	1.01
	TBG05	5	1.55	0.472
	TBG05	3	1.53	0.483
	TBG06	2	1.69	0.771
Thorium-232	TBG02	2	5.23	4.39
Uranium-234	TBG02	2	1.9	0.488
	TBG02	2	722	113
	TBG02	2	2.69	0.663
	TBG03	1	24000	3890
	TBG05	5	3.2	1.94
Uranium-235-Alpha	TBG02	2	55.6	15.2
	TBG02	2	0.258	0.181
	TBG03	1	2010	724
	TBG06	2	0.244	0.187
Uranium-238-Alpha	TBG01	3	1.57	0.46
	TBG02	2	1.69	0.452
	TBG02	2	707	111
	TBG02	2	2.16	0.573
	TBG03	1	24000	3890
	TBG05	5	2.6	1.68

Appendix A
Technical Memorandum Recommendations for Completion of Trenching at the Animal Carcass Burial Area Vicinity Property G, Revision 1, August 2002

1.0 Introduction

The trenching investigation being performed at Vicinity Property G by Maxim Technologies was suspended in May 2002 due to the discovery of laboratory debris and concerns that further investigation in the area had the potential to expose site worker to unanticipated biological hazards. This Technical Memorandum presents the results of a review regulations of the state of New York and the United State Department of Transportation (USDOT), a review of available literature concerning Nuclear, Biological and Chemical Warfare agents, consultation with experts in biological hazards from the Center for Disease Control (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR), a review of historical documents concerning the University of Rochester and Vicinity Property G, and consultations with SAIC. Also presented in this document are conclusions based on the findings of the literature review and consultations with experts of the CDC and ATSDR in biological hazards and response, and recommendations for the resumption of investigative activities at the Animal Carcass Burial Area located in Vicinity Property G.

2.0 Summary of Trenching Activities -TG01 and TG02

Trench TG01 is located within an area of Vicinity Property G reportedly used for the disposal of radiologically contaminated animal carcasses and lab wastes. Available documentation suggests that at some time in the past the contaminated materials were removed from the pit. The location of the pit is not known with certainty. The purpose of the trenching is to answer two questions:

1) What was the actual location and size of the pit?
2) Is there evidence radiologically contaminated materials are present in the pit?

The proposed location of the 65' long trench was staked at the presumed pit location and a trench approximately 13' long and 6' deep was excavated, starting at the 'A' stake. An area of slightly elevated gamma radiation (approximately 20K cpm) was found in the trench and a soil sample was collected. (All cpm measurements within this document were obtained with a NaI 2"x2" gamma detector, and are in units of "counts per minute". Average background soil surface measurements with a NaI 2"x2" are approximately 8.5K cpm, while trench measurements are normally about 15K cpm due to the change in geometry.) Because the trench is located in a wet area, the field crew had the excavator operator push approximately 6" of mud off an access path. As the field HP was walking on this path to the trench, he noticed that his meter was measuring elevated gamma radiation at a location on the path approximately 4' from the trench. The HP Technician and Geologist inspected the area and found a piece of rusted metal and field measurements indicated that this metal was the source of the gamma radiation. The field team then probed the area with a shovel and determined that the metal was part of a container and the container was too large to dig out by hand. The excavator was then used to uncover the container and the location of the metal container was designated TG02. All spoils excavated from TG02 were placed on a plastic sheet.

The excavator removed the container and placed it on a plastic sheet. The container was rusted and in poor condition. Though the field crew believed that while the excavator may have damaged the container, it is their opinion that container was already breached before it was further damaged by the excavator. Inspection of the contents of the container found syringes, syringe needles, tubing, and other materials thought to be laboratory trash. The container and the contents of the container exhibited gamma activity of approximately 250K cpm. Based on the material discovered in the excavation and the historical use of the area, the work zone was temporarily evacuated. The Site Safety Officer and the Radiation Safety Officer evaluated the site conditions and determined that the investigation could resume after the PPE used by the field crew was upgraded to level C. The exclusion zone was also expanded, downwind air monitoring was instituted, and all spoils were wetted with water to minimize the potential for airborne contamination.

Upon further inspection of the excavated materials, microscope slides, petri dishes, and glass reagent bottles were found near the original location of the metal container. The field HP measured gamma radiation on the petri dishes at 290K cpm. The bottles also exhibited elevated gamma counts. It is not known whether these glass items were originally in the bucket or were separate from the bucket at the time of disposal. The slides and bottles were found at about 2.5' bgl – the approximate elevation of the bottom of the metal container.

Two samples (three 8 ounce jars for each sample) were collected from TG02: a soil sample from a location adjacent to and below the metal container and a sample of the microscope slides and associated soil.

The excavator advanced TG02 to a depth of 4' bgl. Additional miscellaneous lab debris was found at elevations above 3.5' bgl. At 4' bgl, the gamma reading in the bottom of the hole was 35K cpm and it was decided to terminate the excavation at this depth. The bottom of the hole was lined with plastic, the contaminated spoils were backfilled, and the excavation was capped with an additional 2' of apparently clean soil. The 13' trench at TG01 was also backfilled with apparently clean spoils.

The investigation at Vicinity Property G was suspended at this point. Because laboratory debris was found, there was a concern that further investigation of the area might encounter unanticipated biological hazards. The field crew decontaminated all equipment that came in contact with the soils at Vicinity Property G and the excavator was brought back onto the NFSS. Decon procedures were modified to include a rinse of all equipment with a 5% bleach solution. All personnel performing decon were dressed in level C PPE.

All PID readings of the excavated soils from TG01 and TG02 and in the breathing zone were consistent with background conditions. The results of perimeter and personnel air monitoring samples collected at Vicinity Property G during the investigation did not find

evidence of airborne contamination above background concentrations. Following trenching activities, the area around TG01 and TG02 was posted with "Danger" ribbon.

A gamma survey of the trench vicinity found another location 4' east of the 'A" stake that had a gamma reading of 60K cpm at the ground surface. No further investigation was made at this location.

Based upon the discovery of syringes, petri dishes, pipettes, and assorted other laboratory wastes during the excavating activities at the trenching location TG02 in Vicinity Property G, work was suspended pending a review of available literature and consultation with experts experienced with this type waste stream. This consultation was initiated to ensure that adequate respiratory protection and other PPE considerations were in-place to ensure that site workers would be adequately protected during trenching activities at Vicinity Property G. The results of this review and consultation are presented in the following sections.

3.0 Definitions of Regulated Medical Waste (RMW) - New York State Environmental Conservation, Division of Solid Waste

Public Health Law 1389 -aa defines Regulated Medical Waste (RMW) as: *"Regulated medical waste shall mean any of the following waste which is generated in the diagnosis, treatment or immunization of human beings or animals, in research pertaining thereto, or in production and testing of biologicals, provided however, that the regulated medical waste shall not include hazardous waste identified or listed pursuant to Section 27-0903 of the Environmental Conservation Law, or any household waste promulgated under this section."*

There are six subcategories that exist within the general definitions of regulated medical wastes as defined in Public Health Law 1389 -aa. These are:

1) Cultures and Stocks
"This waste shall include cultures and stocks of agents infectious to humans and associated biologicals, cultures from medical or pathological laboratories, culture and stocks of infectious agents from research and industrial laboratories, waste from the production of biologicals, discarded live or attenuated vaccines, or culture dishes and devices used to transfer, inoculate, or mix cultures."

2) Human Pathological Wastes
"This waste shall include tissues, organs, and body parts (except teeth and the contiguous structure of bone and gums) body fluids that are removed during surgery, autopsy, or other medical procedures or specimens of body fluids and their containers, and discarded material saturated with body fluids other than urine, provided that the Commissioner, by duly promulgated regulation, may exclude such discarded material saturated

with such body fluids from this definitions if the Commissioner finds that it does not pose a significant risk to public health. This waste shall not include urine or fecal materials submitted for other than diagnosis of infectious diseases."

3) Human Blood and Blood Products
"This waste shall include: (I) discarded human blood, discarded blood components (e.g. serum and plasma), containers with free flowing blood or blood components, or discarded saturated material containing free flowing blood or blood components; and (II) materials saturated with blood or blood products provided that the Commissioner, by duly promulgated regulation, may exclude such material saturated with blood or blood products from this definitions if the Commissioner finds that it does not pose a significant risk to public health."

4) Sharps
Sharps are defined as follows: *"This waste shall include but not be limited to discarded unused sharps and sharps used in animal or patient care, medical research, or clinical or pharmaceutical laboratories, hypodermic, intravenous, or other medical needles, hypodermic or intravenous syringes to which a needle or other sharp is still attached, Pasteur pipettes, scalpel blades or blood vials. These wastes shall include, but not be limited to, other types of broken or unbroken glass (including slides and cover slips) in contact with infectious agents. This waste shall not include those parts of syringes from which sharps have be removed, and which are intended for recycling or disposal, so long as such syringes have not come in contact with infectious agents."*

Glass or rigid plastic culture tubes flasks, beakers, lancets etc. must also be considered sharps and disposed of accordingly.

5) Animal Waste
"This waste shall mean discarded materials including carcasses, body parts, body fluids, blood, or bedding originating from animals known to be contaminated with infectious agents. (i.e. zoonotic organisms) or from animals inoculated during research, production of biologicals, or pharmaceutical testing with infectious agents."

6) Reserved for Designation by the Commissioner of Health to Designate specific items not currently identified as regulated medical waste.

4.0 Definition of Regulated Medical Waste - United States Department Of Transportation (USDOT)

The U.S Department of Transportation defines regulated medical waste as: "*a waste, or reusable material, that contains an infectious substance and is generated in the diagnosis, treatment, or research of humans or animals. This definition does not include discarded cultures or stocks.*"

5.0 Consultation with Agency for Toxic Substances and Disease Registry (ATSDR)

A representative of Maxim contacted the Agency for Toxic Substance and Disease Registry and discussed these issues with Dr. Susan Kess (Emergency Response, Agency for Toxic Substances and Disease Registry - 404-498-0120). Maxim informed her that we were working at a rad contaminated site in upstate NY. The exact location of the site was not divulged. We informed Dr. Kess that the site was a former MED/AEC/DOE site and that Maxim has been taking the appropriate safety precautions/screening for radiological contamination. Recently, while trenching, we uncovered syringes and other miscellaneous laboratory glassware such as petrie dishes, pipettes, bottles, etc. Maxim indicated that the syringes and laboratory glassware were discovered and thought to likely be from experiments conducted by the University of Rochester for the MED/AEC. The University of Rochester was reported to have researched PELs for some isotopes.

Maxim requested information concerning recommended safety precautions that should be employed during further trenching in this area and shipment of samples to the laboratory.

Dr. Kess responded by saying that for the most part, the radiological precautions supercede any biological precautions. Except for the presence of needles or "sharps", we should use the same PPE used for the radiological hazards. Protective gloves such as steel mesh gloves would be required if needles or "sharps" were involved and were handled.

A representative of Maxim also discussed these issues with Mr. Rich Nickles, Emergency Response Health Physicist for the Agency for Toxic Substances and Disease Registry, U.S. Public Health Service (404-498-0361). Mr. Nickles was informed that these same issues had been discussed with Dr. Kess and that she had indicated we should treat the waste as medical waste. Mr. Nickles was provided a description of the site and what was found. Again, the exact location of the site was not divulged. Maxim further informed Mr. Nickles that all necessary precautions for the radiological contamination were being used and that Maxim had recently uncovered syringes and glass laboratory equipment during investigative trenching activities. Dates on the glassware are from the mid 1940s, but burial may have taken place anywhere between the 40s and the 70s. The radiological screening instruments have indicated the materials are radiologically contaminated.

Mr. Nickles recommended that before Maxim resumed work in this area we needed to ensure that safety procedures were established that would be protective of personnel participating in the trenching, sample shipment and sample analysis. Maxim informed Mr. Nickles there were some concerns about the possibility of infectious agents in this area. Mr. Nickles said that, with the exception of anthrax, biological agents do not survive well in the environment. According to Mr. Nickles, it was unlikely that biological hazards were present and the radiological hazards would take precedence in this case. Any biological agents originally present would no longer be viable. Mr. Nickles stated that Maxim should employ tear/puncture resistant gloves when sampling to protect from "sharps".

Mr. Nickles indicated that standard procedures to prevent infectious agent contamination included the use of a decontamination solution. This solution is usually a 10:1 solution of bleach can be used but many investigators/responders use a 5:1 to 4:1. He recommended that Maxim contact biosafety representatives from the Center for Disease Control (CDC). Mr. Nickles provided the ATSDR 24-hour number and the CDC's 24-hour number. He indicated that we should have these numbers with us when working at this site. These numbers are as follows:

The ATSDR 24-hour number	404-498-0120
CDC - 24-hour number	770-488-7100
CDC biosafety director's number	404-639-0229.

6.0 Consultation with Center for Disease Control (CDC), Office of Health and Safety

Maxim initially contacted Dr. Rob Weyant, Chief of the Laboratory Safety Branch, CDC Office of Health and Safety (404-639-3238). The site history was repeated and Maxim indicated that the syringes and laboratory glassware were discovered and thought to likely be from experiments conducted by the University of Rochester for the MED/AEC. The University was reported to have researched PELs for some isotopes.

Maxim also informed him that these issues had been discussed with Dr. Susan Kess and Rich Nickles of the ATSDR. Maxim indicated that Mr. Nickels and Dr. Kess had indicated that the predominating hazard was radiological and that the lab articles should be treated as medical waste and we should take precautions for "sharps". Mr. Nickles also said that we could spray the area down with a bleach solution. We were concerned with the possibility that the university could have disposed of "other" wastes with their radiological wastes. Mr. Weyant indicated that he would discuss these issues with a radiation expert and respond to Maxim as soon as possible.

Mr. Weyant initiated a conference call that included Mr. Paul Simpson (Chief, Radiation Safety), Ms. Janice Knight (Occupational Health and Safety Officer) and Ms. Dana Jones (Occupational Health and Safety Officer) with the CDC Safety Office and Maxim. Maxim repeated the history of the site and what was found. Mr. Simpson asked if we

knew the isotopes that were present at this area. Maxim indicated that based on portable gamma spectrometer results, the primary isotopes present were thorium, radium and uranium, and that some cesium may also be present.

The CDC representatives agreed that the predominating hazard at the site was the radiological hazards. Maxim asked if we needed to use respirators or supplied air to protect against exposure to possible infectious agents. They indicated that the only hazards Maxim needed to be concerned with were the physical hazards from sharps and the radiological hazards. They all expressed the opinion that the possibility of the presence of biohazards was nil.

Maxim inquired if samples from this area would need to be shipped as medical waste. The CDC representatives indicated that due to the long period of burial, the waste would not be considered as medical waste. The CDC directed that Maxim should ensure that samples containing sharps should be properly handled and packaged and that laboratory personnel were aware of the presence of sharps hazards in the samples. Maxim inquired if there were any other precautions we needed to consider when dealing with the lab glassware etc. found in the trench. The CDC indicated no additional precautions were necessary.

Maxim informed them that the 24-hour numbers would be made available during any future work at the site.

7.0 Chemical Warfare Agents (CWA)

The disposal of chemical warfare agents at Vicinity Property G has not been confirmed or suggested in documents reviewed by Maxim. These materials are similar to infectious agents in that they do not persist in the environment for long periods of time and would not be expected to be present at this location if undocumented disposal of any CWA materials would have taken place at Vicinity Property G. Most agents, in their dispersed form, range in persistence in the environment from several hours to one week. The Medical NBC Battle Book, USACHPPM Tech Guide 244 Table 5-M (Page 5-22) details relative persistence in the environment under battlefield conditions. Typical CWA materials include:

7.1 Lung-Damaging Agents - Lung-damaging agents attack lung tissue causing pulmonary edema. Mustard (H, HD) Lewisite (L) and Chlorine act primarily on the larynx, trachea, bronchi, while Phosgene (CG) Perfluoroisobutylene (PFIB) and Nitrogen oxides (NO_x) have predominate effects in the small airways and alveoli.

7.2 Nerve Agents - Nerve agents are all liquid in the nondispered form. Nerve agents may be absorbed through any body surface but typically are absorbed as an aerosol or droplets through the skin, eyes or respiratory tract. These agents generally interrupt or disrupt the transfer of stimuli

from nerves to muscles by inhibiting cholinesterase. Nerve agents such as GA, GB, GD persist for 2 hours to 3 days. VX, another nerve agent, persists for two days to one week. The following agents are classified as official nerve agents by the United States Department of Defense.

Tabun - GA
Sarin - GB
Soman - GD
VX

7.3 Blister Agents - These agents are also known as vesicants that burn and blister the skin or any other part of the body with which they come in contact. They act on the eyes, mucous membranes, lungs and the respiratory tract when inhaled, skin and blood forming organs. They also damage the gastrointestinal tract and cause vomiting and diarrhea when ingested. Blister agents such as HD, HN, L, HL, and CX persist from one day to one week. The U.S. DOD lists the following agents as official blister agents.

Distilled Mustard - HD
Nitrogen Mustard -HN
Lewisite - L
Mustard/Lewisite - HL
Phosgene oxime - CX

7.4 Blood Agents - Blood agents are absorbed by the mucous membrane and intact skin and have effects on respiration and heart rate. Blood agents such as AC and CK, persist from between 1 to 10 minutes. The U.S. DOD lists the following agents as official blood agents.

Hydrogen Cyanide - AC
Cyanogen Chloride - CK
Arsine - SA

8.0 Conclusions and Recommendations

8.1 Conclusions

Classification of Materials as RMW - Based upon the review of the definitions of RMW as presented in Public Law 1389-aa and TAGM SW-97-10, it is Maxim's opinion that these waste materials may be considered RMW in the state of New York due to the presence of sharps. Sharps are classified as regulated medical waste independent of known contact with infectious agents. Sharps that have been treated by a treatment method such as incineration, autoclaving or any other New

York State Department of Health (NYSDOH) approved method and destroyed, may be disposed of as solid waste. Destruction is defined as "as RMW that has been ruined, torn apart, or mutilated through processes such as thermal treatment, melting, shredding, grinding, tearing, or breaking, so that it is no longer recognizable as RMW. It does not mean compaction."

The U.S DOT does not classify sharps as RMW unless the material contains an infectious substance. Therefore, there are no specific labeling requirements for sample shipment containers. The current sample packaging protocols used by Maxim satisfy the requirements for shipment of regulated medical wastes as presented in 49 CFR 173.197.

Infectious Agents Hazards - Based upon the previously presented information and discussion with the CDC and ATSDR, the PPE and work practices in Vicinity Property G should be based upon the radiological hazards at the site and physical hazards associated with the needles and glassware. There is no documented evidence that these materials have been in contact with or contaminated with human blood or infectious agents *(i.e. zoonotic organisms)*. The documentation available concerning the wastes at the animal carcass burial area indicates that the experiments were conducted with radiological isotopes, not infectious agents. The CDC and the ASTDR have indicated that these materials would not present biohazards to site workers based on the period of time that as elapsed since disposal and that any infectious agents would no longer be viable.

Chemical Warfare Agent Hazards - Chemical warfare agents would not present a hazard to site workers unless sealed containers of the materials were uncovered and the container ruptured, releasing the material to the environment. Since there has been no documented disposal of these materials at the site, hazards associated with CWA materials are not expected to be present.

8.2 Recommendations

Based upon the above-presented information, a review of additional historical documents, Maxim, in consultation with SAIC, recommends the resumption of the trenching activities at the animal carcass burial area of Vicinity Property G. In order to safely and fully characterize the area, Maxim recommends the following:

1) The PPE ensemble and safety procedures used by field personnel should be modified as follows:

   - The level of respirator protection should be upgraded to Level C and that Powered-Air-Purifying Respirator (PAPRs) equipped with organic vapor/acid gas/ P100 (OV/AG/P100) cartridges should be used. The use PAPRs will increase the protection factor from 50 to 1000 (based

on NRC regulations) and also aid in the reduction of the effects of heat stress/heat stroke caused by the increased level of protection on site workers.

- The known presence of hazards associated with laboratory sharps will require the use of a disposable coverall constructed of a more tear resistant material. Maxim recommends the use of System CPF® protective garments which offer greater physical strength and durability and chemical holdout than typical protective garment materials. These suits will be hooded and booted, with sealed seams. Each member of the field crew would require two suits per day.
- The known presence of hazards associated with laboratory sharps requires the use of hand protection constructed from materials that will reduce the potential for cuts and punctures from incidental contact with sharps during sampling activities. Maxim recommends the use of Kevlar® gloves with leather palms and finger coverings to mitigate this hazard. All personnel within the exclusion zone will be required to wear this type of hand protection.
- The Site Manager will post the emergency phone contact numbers for the ATSDR and the CDC at the job site trailer and at the work zone at Vicinity Property G
- The presence of hazards associated with laboratory sharps will require the use of substantial rubber overboots and steel toed leather work boots to provide for additional foot protection. Site workers entering the exclusion zone will not be allowed to use latex rubber "nuke boots".
- Because of safety concerns, Maxim will restrict the number of personnel in the exclusion zone to the equipment operator, SAIC HP technician, Maxim Geologist, Maxim Environmental Scientist, and one USACE - Buffalo District representative. All personnel working within the exclusion zone will be required to wear the prescribed PPE ensemble. Other visitors will be allowed to enter the support zone to observe the progression of work. This restriction is made based on the constraints on mobility and vision caused by the PPE on the equipment operator and other personnel in the work zone. It is Maxim's position that by restricting the number of personnel entering the work zone, the work can be conducted in a safer more efficient manner.
- Decontamination of personnel and equipment will include a sodium hypochlorite rinse.
- Stainless steel or wooden disposable implements will be used to transfer laboratory debris materials to sample and disposal containers.

These revised safety protocols and the other unmodified protocols still in force were designed to be protective of the plutonium derived air concentration value (DAC). Additional historical information reviewed

by Maxim does not indicate that further modification of the safety protocols is warranted.

2) Sample containers containing sharps material should be identified with warnings to alert laboratory personnel as to the sharps hazards associated with broken glass, needles, etc.

3) Based on the USDOT definitions of RMW, no additional sample shipment container labeling will be required for the shipment of sharps containing samples to the analytical laboratory.

4) Due to the non-viability of infectious agents following long-term internment in the environment, no biological screening or biological analysis of samples is recommended.

5) Based on a review of additional information concerning the University of Rochester disposal area and Vicinity Property G, the following field investigations are recommended, listed in order of priority:

   i) Complete trench TG01. This trench is located 88 feet east of the old farmhouse and will intersect the area referred to as the "University of Rochester Burial Site" shown on Figure B-2 from "Background and Resurvey Recommendations fro the Atomic Energy Commission Portion of the Lake Ontario Ordnance Works", November 1982.

      Trench TG01 should be approximately 65 feet long and should be excavated to a depth of approximately 12 feet bgl.

   ii) Excavate and prepare for disposal the laboratory debris that was found in trench TG02.

      Trench TG02 should be approximately six feet long and four feet deep.

   iii) A 60 KCPM hotspot was found near the north end of TGO1. Maxim recommends the excavation of an exploratory trench through this hotspot. This trench location is labeled TG03 on Figure 1.

      Trench TG03 should be approximately 10 feet long and should be excavated to a depth of four feet bgl (and perhaps deeper, depending on field conditions).

iv) The document "Background and Resurvey Recommendations for the Atomic Energy Commission Portion of the Lake Ontario Ordnance Works" states that contaminated materials were excavated from the "University of Rochester Burial Site" in 1972 and the excavated materials were "placed in the spoils pile onsite". There is a large mound of soil located approximately 30 feet northwest of the location of trench TG01. Maxim recommends the excavation of an exploratory trench through this mound. This trench location is labeled TG04 on Figure 1.

Trench TG04 should be approximately 30 feet long and should be excavated to a depth of two feet into native soil below the spoils pile.

v) There is a depression approximately 200 feet east of the farmhouse and it is thought that this depression may be evidence of a former disposal area. Maxim recommends the excavation of a trench through this depression. This trench location is labeled TG05 on Figure 1.

Trench TG05 should be approximately 50 feet long and should be excavated to a depth of approximately 12 feet bgl.

vi) Aerial photographs taken in the 1950's show an area of disturbed soil approximately 140 feet south of the old farmhouse. This disturbed area may be a former disposal area and Maxim recommends the excavation of an exploratory trench though this area. This trench location is labeled TG06 on Figure 1.

Trench TG06 should be approximately 100 feet long and should be excavated to a depth of approximately 12 feet bgl.

Maxim also recommends the determination of the coordinates of the trenches with a differentially corrected GPS unit capable of attaining sub-meter accuracy.

6) A review of the available historical documentation indicates that the following radionuclides may have been used at the University of Rochester prior to 1955 and may have been deposited in the "Rochester Dump" at Vicinity Property G:

- Radium-226
- Uranium-233
- Uranium-234
- Uranium-235
- Uranium-238

- Plutonium-239
- Thorium-230
- Thorium-232
- Thorium-234
- Polonium-210
- Radon-222
- Strontium-90

Soil, animal carcass, and laboratory debris samples from the six trench locations described above should be collected and analyzed for the following radiological parameters:

- Gamma Spec (U-238, Ra-226, Ra-228, Th-228, U-235, Pa-231, Ac-227, Co-60, Cs-137, and Am-241)
- Gross alpha/beta
- Isotopic Uranium
- Isotopic Thorium
- Isotopic Plutonium
- Strontium-90
- Total Uranium
- Total Activity

As stated above, the University of Rochester may have used Radon-222 and Polonium-210. Radon-222 is a gas with a short half-life (3.8 days). Because Radon is subject to permeation through the sample media, analysis of this isotope in soil is problematic. The concentration of Radon-222 in the samples can however be estimated from the concentrations of Radium-226. Polonium-210 also has a fairly short half-life (138 days) and any Polonium-210 originally disposed at Vicinity Property G will have been reduced to an immeasurably small concentration because of radioactive decay. Polonium-210 attributable to the decay of Uranium-238 can be estimated from the concentration of Radium-226.

Analysis of total activity and gross alpha/beta is recommended as a check on the gamma spec and isotopic analyses. An evaluation of the total activity and gross alpha/beta test results may indicate the presence of an isotope not accounted for in the gamma spec and isotopic analyses.

Based on the sizes of the trenches TG01, TG04, TG05, TG06, three soil samples should be collected for radiological analyses from each of the previously identified trenches. Because TG02 and TG03 are relatively smaller, only one soil sample should be collected from each of these trenches for radiological analysis.

Animal carcasses potentially present at Vicinity Property G were originally generated during experiments performed at the University of Rochester. It is likely that the experimental protocols called for the application of a range of dose rates to the test animals. For this reason, three samples should be collected from animal carcasses at each trench location and to the extent possible the samples should be collected from separate carcasses.

The frequency of these radiological samples is shown in Table 1.

7) The previous investigation of Vicinity Property G in May 2002 confirmed the presence of laboratory debris. This debris may be a source of chemical contamination. In order to confirm the presence or absence of chemical contamination associated with laboratory debris which may be present, Maxim recommends the performance of the following chemical analyses be performed:

- VOCs
- Pesticides/PCBs
- SVOCs
- Total Metals (23 CLP metals plus lithium and boron)

At each trench location, Maxim recommends the collection of one soil sample from each trench. Historical documentation indicates that the disposal area was used in the 1950's. Based on the length of time since laboratory debris and animal carcasses were originally deposited at Vicinity Property G, it is likely that any chemical contamination associated with these media has since leached into the surrounding soils. For this reason, chemical analyses should be performed only on soils. If laboratory debris or animal carcasses are found in a trench, the soil sample should be collected from immediately below these materials, unless field conditions indicate a greater likelihood of chemical contamination elsewhere in the trench.

The frequency of recommended soil samples is shown on Table 1.

8) In order to characterize the laboratory debris and decontamination fluids for disposal, Maxim recommends that the following analyses be performed:

Laboratory Debris

TCLP VOA Extraction w/ TCLP-VOA Analysis
TCLP Extraction (non-VOA)
TCLP-SVOC
TCLP-Pesticides
TCLP-Herbicides
TCLP-Metals
Ignitability
Corrosivity as pH

Reactivity
Paint Filter

Aqueous Samples

Isotopic Th-228, Th-230 and Th-232
Ra-226
Gamma Spec (*)
U-235/238
Total Uranium
Gross Alpha/Gross Beta
Sr-90
Pu-238,239/240
Volatiles
Semi-Volatiles
Pesticides/PCB's
Metals(TAL) Total and Metals(TAL) Dissolved

Radiological characterization of the laboratory debris for disposal will be based on the results of the radiological field samples and radiological screening performed by Health Physics personnel. Some of the recommended aqueous IDW analyses may not be required based on the results of the analysis of soil samples collected from the trenching locations.

9.0 REFERENCES

The Medical NBC Battlebook, USACHPPM Tech Guide 244, USACHPPM, May 2000.

Managing Regulated Medical Waste, New York State Department of Health http://www.health.state.ny.us/nysdoh/search/index.htm, June 2002.

OSHA Bloodborne Pathogen Standard. Title 29 Code of Federal Regulation, Part 1910.1030

Technical Administrative Guidance Memorandum, TAGM SW-97-10, Disposal of Regulated Medical Waste Sharps, Effective Date: May 3, 2001 (supersedes TAGM DSHM-97-04), NYS Department of Environmental Protection Website http://www.dec.state.ny.us/website/dshm/regs/sw97_10.htm

Chemical Warfare Agent: An Overview, U. S. Army Medical Research Institute of Chemical Defense, Chemical Casualty Care Division Website http://ccc.apgea.army.mil/reference_materials/reference.asp

Nerve Agents & Pretreatment, U. S. Army Medical Research Institute of Chemical Defense, Chemical Casualty Care Division Website http://ccc.apgea.army.mil/reference_materials/reference.asp

Code of Federal Regulations, 49 CFR 173.134 and 173.197

Excerpt from: "Radiological Assessment Report for the University of Rochester annex, 400 Elmwood Avenue, Rochester, New York, April-May 1984"

Tonawanda Area Progress Report, August 1950

Excerpt from: "Radioactivity and Health, A History", By J. Newell Stannard, October 1988

"Background and Resurvey Recommendations for the Atomic Energy Commission Portion of the Lake Ontario Ordnance Works", November 1982

Hooker Electrochemical Company Memo, From A.P. Walker to F.W. Malone, July 15, 1955

Excerpt from "Index of Classified Reports from The University of Rochester Atomic Energy Project", January 1948 through December 1949

"Final Decommissioning of the University of Rochester Alpha Laboratory", By R.H. Wilson, et al. Department of Radiation Biology and Biophysics, University of Rochester School of Medicine and Dentistry, December 12, 1979

Verification of ANL Characterization Survey of the University of Rochester Medical Center Annex, WE-Manage, Inc. December 31, 1999

"Summary of Historical Assessment to Identify ROPCs at the NFSS Vicinity Property G Rochester Burial Area", USACE-Buffalo District, 7/31/02

Appendix B

Trenching Plan and Addendum to the Field Sampling and Analysis Plan

TRENCHING PLAN
AND
ADDENDUM
TO THE
FIELD SAMPLING AND ANALYSIS PLAN
REMEDIAL INVESTIGATION
AT THE NIAGARA FALLS
STORAGE SITE
NIAGARA COUNTY, NEW YORK

Contract DACW-49-97-D-0001
Delivery Order 0012

Prepared For:

U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

September 2002
9905006

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Revision 1.0

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LIST OF ACRONYMS/ABBREVIATIONS

ASTM	American Society for Testing and Materials
COR	Contracting Officer Representative
DOD	Department of Defense
FSP	Field Sampling Plan
FUSRAP	Formerly Used Sites Remedial Action Program
GPS	Global Positioning System
IWCS	Interim Waste Containment Structure
MSD	Matrix Spike Duplicate
NFSS	Niagara Falls Storage Site
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
PCOC	Potential Contaminant of Concern
PID	Photo-Ionizing Detector
RI	Remedial Investigation
SAIC	Science Applications International Corporation
SM	Site Manager
SOW	Scope of Work
SVOC	Semi-Volatile Organic Compound
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

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1.0 INTRODUCTION

This trenching plan describes the methods for diagnostic trenching and sampling at the Niagara Falls Storage Site (NFSS), Lewiston, New York, and is a supplement to the 1999 Field Sampling Plan. This plan is being submitted in accordance with the scope of work for Delivery Order 12, Contract #: DACW49-97-D-0001.

As part of the ongoing Remedial Investigation (RI) being performed at the NFSS, this Trenching Investigation Field Sampling Plan (FSP) Addendum summarizes the activities that will be conducted to characterize potential underground storage tanks, potential burial areas and anomalies found during the 2001 geophysical study conducted by Science Applications International Corporation (SAIC). This plan provides the strategy and rationale for performing this characterization. Information regarding the site history is provided in the November 1999 Final *Field Sampling Plan – Phase I Remedial Investigation* for the NFSS.

The activities described in this document are based on the February 2002 Statement of Work (SOW) for *On-Site Trenching and Associated Sampling* issued by the Buffalo District of the United States Army Corps of Engineers (USACE) and the subsequent negotiations.

The objectives of the trenching task are:

1) Confirm the presence or absence of suspected anomalies based on historical information and previous phases of the remedial investigation and visual site inspection. Anomalies confirmed to be present will be characterized (e.g. anomaly size, depth, condition, and type).
2) Investigate anomalies disclosed as a result of both the historical review and the geophysical survey of the site.
3) Determine the potential nature and extent for contamination, collect samples of subsurface soil, and analyze those samples for potential contaminants of concern (PCOC). The locations and visual descriptions of identified anomalies (e.g. USTs, etc.) and locations and types of contamination that exceed applicable limits will be determined and characterized. Chemical and radiological contaminants will be screened against applicable limits and background levels (as appropriate).

The locations and visual descriptions of identified anomalies (i.e. UST, debris piles, pipelines, disposal areas, sumps, etc.) and locations and type of contamination, which exceeds applicable evaluation criteria, will be detailed in a report.

In response to Delivery Order 12, a Sampling and Analysis Plan, Addendum Health and Radiation Protection Plan and a Release Contingency Plan were prepared and submitted under separate covers.

2.0 TRENCH EXCAVATION

All trenches will be excavated with a track-mounted hydraulic excavator. The excavator will have the ability to excavate a trench 13 feet deep. A qualified engineer or geologist will directly supervise all trenching activities. The onsite engineer/geologist will instruct the equipment operator to remove no more than one foot of soil from the bottom of the trench with each bucket.

In most cases, trenches will be installed with vertical sidewalls. If it is necessary to enter a trench, the sidewalls may be sloped as described in Section 10.

Prior to excavating soil at a trench, a limited gamma survey of the trench area and immediate vicinity will be performed. Areas which have gamma radiation at levels of approximately four times background, or greater, will be flagged.

While the excavator is in operation, workers are not allowed within 10 feet of the maximum reach of the boom. At all times, except as necessary for monitoring, sampling, and trench entry, workers will stay at least two feet back from the trench. Access to the work area during trenching operations will be visually controlled while a trench is open. If a trench is left open overnight, the work area (restricted area) will be barricaded by surrounding the area with caution tape and construction fencing to prevent access.

3.0 TRENCH LOCATIONS

Trench locations and approximate dimensions are shown on Figure 1 and are described on Table 1. Table 1 also shows the anticipated maximum depth and length of each trench.

Prior to the arrival of the excavating equipment on-site, the anticipated boundaries of each trench will be staked and flagged and, for trenches designed to investigate geophysical anomalies, the presence of the anomaly within the footprint of the proposed trench will be confirmed and flagged by SAIC field geophysicists. These personnel will also estimate the depth to the top of the anomaly and this information will be recorded on the flag stake. The known locations of sewers and other subsurface anomalies in the vicinity of each trench will also be staked and flagged. The ends of the proposed trenches will be located by SAIC with a GPS unit. SAIC will provide the coordinate data, in the New York West NAD 83 state planer system, to Maxim

If the configuration of an excavated trench deviates from the plan, the trench will be relocated with a GPS unit. The distance of sample locations and the locations of any other items or features of interest will be measured from the “A” end of the trench (as shown on Figure 1) and will be recorded on the field trenching form. A dimensioned cross-sectional drawing of the trench will also be recorded on the field trenching form. An example of the field trenching form is shown in Appendix A.

The Site Manager will ensure that no trench is excavated in a location that could endanger the stability of any building, road, utility, or other structure.

Drawings showing the results of SAIC's geophysical survey of the site and the proposed trench locations are presented in Appendix B.

4.0 CLEARING AND GRUBBING REQUIREMENTS

Prior to removing soil at each trench location, the area to be used for the spoils pile will be determined and the excavator will remove all trees and brush from the area. Removed trees and brush will be piled at a convenient location near each spoils pile. Where possible, the spoils piles will be located in such a manner as to minimize the required amount of clearing and grubbing.

Prior to locating a spoils pile, the results from the previous gamma walkover survey will be consulted and a limited gamma survey will also be performed (as necessary) to avoid placing a spoils pile on a contaminated area. The USACE site superintendent will approve the location of the spoils pile and all clearing activities.

5.0 WATER MANAGEMENT

At the conclusion of each workday, all open trenches will be backfilled. If unforeseen field conditions prohibit the backfilling of a trench at the end of a workday, temporary ditches and berms will be constructed around the trench to minimize the migration of storm water runoff into the trench. The area around the open trench will also be flagged and barricaded in accordance with the SSHP.

During a rain event of sufficient intensity to produce surface water runoff, if it is determined that field operations are to continue or are to be only briefly interrupted, the immediate area around the open trench will be graded in such a manner as to prevent surface water runoff from migrating into the trench.

Water that has accumulated, or is accumulating, in a trench will be pumped out of the trench into a truck-mounted temporary storage tank, if deemed necessary by the Site Manager to continue the trench. The water will be hauled to and stored in the storage tanks located near the project trailer. Water from several trenches may be stored in a single tank. Disposal of IDW water will be handled under a separate task order.

If water is visibly accumulating in the trench, the Site Manager will be notified. Based on the rate at which the water is accumulating in the trench and other site conditions, the Site Manager may limit the excavated length or depth of the trench.

The amount of IDW water produced will be minimized where practicable. Only water from trenches that directly interferes with investigation activities will be removed.

6.0 SPOILS PILE MANAGEMENT

Excavated soil will be piled on a tarp to the side of the trench and the base of the pile will be set back a minimum of two feet from the edge of the trench. If it is necessary to leave a trench open overnight, the spoils pile will be covered with a tarp. The open excavation will be barricaded with construction fence and the spoils pile will be barricaded with yellow caution tape.

Each bucket of excavated soil will be surveyed for gamma radiation. At each trench location, soils that exhibit gamma radiation levels that are more than four times the local background level or if chemical contamination is demonstrated or suspected based on TNT field testing, field screening with a PID, or visual observation, that portion of the soil excavated from a given trench will be segregated and placed on a tarp and the tarp will be covered. Soil samples representative of the contaminated soil will be collected and submitted for analysis as described in Table 2. If the field data indicates that the proposed list of analytical parameters will not adequately characterize the contaminated soils, additional analysis will be proposed to the USACE. The contaminated soil will remain covered at the trench site. After the analytical results are available, Maxim will propose a recommended method of disposal for the contaminated soils.

7.0 SITE RESTORATION

All trenches will be backfilled with the soil that was excavated from the trench. To prevent excessive settlements, the backfilled soil will be compacted with the excavator bucket as it is being placed in the trench. After the trench is backfilled, a limited gamma survey will be performed over the trench area. Areas that do not exhibit levels of gamma radiation in excess of twice the local background will be further compacted by driving the excavator across the trench. This final compaction effort will not be performed on areas that exhibit gamma radiation in excess of twice the local background. In order to minimize erosion, all exposed soil surfaces will be seeded with an annual grass crop such as annual rye or spring oats.

All equipment used at each trench location than came in contact with potentially contaminated material will be monitored for total contamination prior to removal from the immediate work area. Excess soil will be removed, as practical, prior to this survey. This survey will be the primary mechanism to ensure that the travel path back to the decontamination pad or the next trench is not cross-contaminated.

8.0 TRENCH ENTRY AND ACCESS

8.1 Trench Entry

Maxim will attempt to perform all monitoring and sampling activities without entering the trenches. However, if it is necessary to enter a trench, entry will be made in accordance with the requirements of this section. The Site Manager will be notified prior to entering a trench.

8.1.1 Shallow Trenches

Workers will be allowed to enter excavations that are less than 5 feet in depth after the site manager or another competent person inspects the trench and finds no indication of a potential cave-in. Indications of a potential cave-in include bulging of the sidewalls, spalling, and cracking. Each trench shall be inspected prior to each entry.

8.1.2 Deep Trenches

If entry is required into a trench that is more than five feet deep, the site manager will ensure that the sides are properly sloped or that a trench box is properly installed in the trench. Sloping requirements and trench box installations are described in Section 10.

8.2 Access

A ladder will be used to enter trenches that are more than four feet deep. The ladder will be located so as to require no more than 25 feet of lateral travel for workers in the trench. The ladder will be attached to a ground anchor or stake at the top of the trench.

9.0 TRENCH MONITORING

Each bucket of material excavated from the trench will be monitored with a PID and a gamma survey meter and will be inspected for evidence of nitoraromatic compounds. Excavated soil that exhibits levels of gamma radiation in excess of four times the local background will be segregated in accordance with Section 6.0. Each time the depth of the trench is excavated an additional foot, the bottom of the trench will be surveyed with a magnetometer. If the magnetometer survey indicates that an anomaly is present, the site manager will be contacted. The Site Manager will determine, after consultation with the Site Safety Officer, if the trench should continue to be excavated. If it is determined that the trench should continue to be excavated, the site manager may instruct the equipment operator to decrease the thickness of the soil layer removed by the excavator bucket.

If elevated PID readings in the breathing zone are encountered, the Site Safety Officer will be immediately notified and field personnel will move to away from the area.

While trenching is being performed in the Acidification Area, Maxim will employ a two step field-screening method to determine the presence or absence of TNT. The first step, performed with Espray, will determine if TNT is present. The second step, performed with the DTEK field test kits, will determine if TNT is present at concentrations greater than or equal to 10%. The second step will only be performed if the first step indicates TNT is present. If TNT is found at concentrations greater than or equal to 10%, the SSHO will be contacted immediately. The testing protocol will be modified for suspect TNT chunks or nodules greater than one-half inch in size. If the

first step of the testing protocol (the Espray) indicates that the chunk or nodule contains TNT, the SSHO will be notified immediately.

If TNT is found in soils at concentrations greater than 10% or if TNT chunks greater than one-half inch in size are found, workers will move from the vicinity and will await further instruction from the SSHO. The SSHO, in consultation with the USACE Site Superintendent, the USACE IH, the Maxim CIH and the Maxim PM will determine the appropriate measures that will be employed to adequately protect on-site workers.

Prior to installation of trenches in the Acidification Area, Maxim will conduct a visual inspection of the trench area for TNT chunks or nodules and/or red soil staining which may be indicative of TNT contamination. If this inspection finds visual evidence indicative of TNT contamination, the testing protocol described above will be performed.

During trench installation in the Acidification Area, Maxim will visually inspect the trench sidewalls and excavated material for visual evidence for red soil staining which may be indicative of TNT contamination and for TNT chunks or nodules. Maxim will also conduct periodic screening of the soils from the sidewalls and of excavated material using the testing protocol described above. Results of all nitroaromatic field tests will be recorded on the field trenching form.

Should evidence of ordnance, medical wastes, or animal carcasses be uncovered during the trenching operations, Maxim will stop all work immediately, vacate the area, and notify the Site Safety and Health Officer (Tony Cappella, 716-879-4173) and the Site Superintendent (Dennis Rimer, 716-879-4444).

An HP technician will survey drums, containers, and deposits of suspect process wastes for alpha emitters as described in the RPP. During trenching, radiation will be monitored on soil surfaces and excavated soil. Air will be monitored using a breathing zone sampler. Fixed contamination surveys will be performed on excavator buckets and area dose rates will be measured in accordance with the RPP. Action levels and subsequent actions are presented in the RPP.

10.0 TRENCH SLOPING AND TRENCH BOX INSTALLATION

If it is necessary to enter trenches that are more than five feet deep a trench box must be installed in the trench or the sidewalls must be sloped in accordance with this section. If entry is required, the site manager will be notified and the site manager, in consultation with the site safety officer, will determine whether a trench will be sloped or whether a trench box will be used.

Sloping the sides has two advantages:

1) Sloping the excavation sidewalls allows an unencumbered inspection of the trench, from bottom to top. Because trench boxes are required to be in close proximity to the sidewalls of the trench, observation of the trench sidewalls

from either inside the trench box or from the top of the excavation is nearly impossible.

2) The metallic components of the trench box may interfere with magnetometer readings.

For relatively shallow trenches in type A and B soils (described in Appendix D of the Safety Plan), sloping will in most cases be the most efficient method of preparing a trench for entry. However, for deeper trenches and trenches in Type C soils, a trench box will in most cases be more efficient than sloping. This is because for deeper trenches and trenches in Type C soils, the volume of additional excavated soil required for sloping becomes significant.

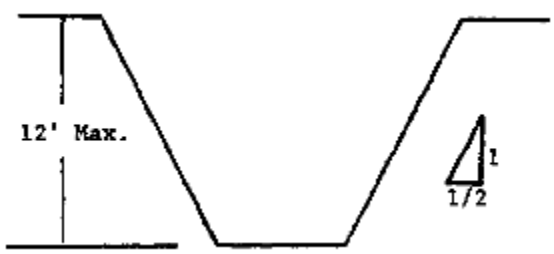
If it is determined that a trench will be sloped in order to accommodate a trench entry, the Site Manager will determine the soil classification for the trench. The degree of trench side slope required by 1926.652 is, in part, a function of the soil type being excavated. A review of the boring logs and the available geotechnical data indicates that the soil types likely to be encountered during the trenching activities will be Type A or Type B. Maxim will classify the soil at each trench location in accordance with OSHA's soil classification methods.

The Site Manager will periodically check the soil classification and verify that the original classification is still correct. If the soil type changes as the trench is excavated, the weakest soil type encountered shall be used to determine the slope of the sidewalls (Type A soil is strongest, Type C is weakest).

10.1 Deep Trenches in Type A Soil

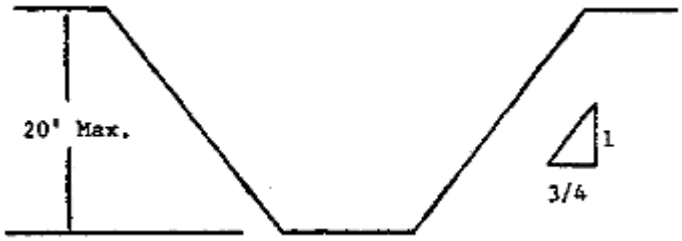
10.1.1 Short-Term Trenches Less Than 12 Feet Deep In Type A Soil

Simple slope excavations that are open 24 hours or less (short term) and are 12 feet or less in depth shall have a maximum allowable slope of 1/2:1. The following figure shows the allowable side slope geometry:



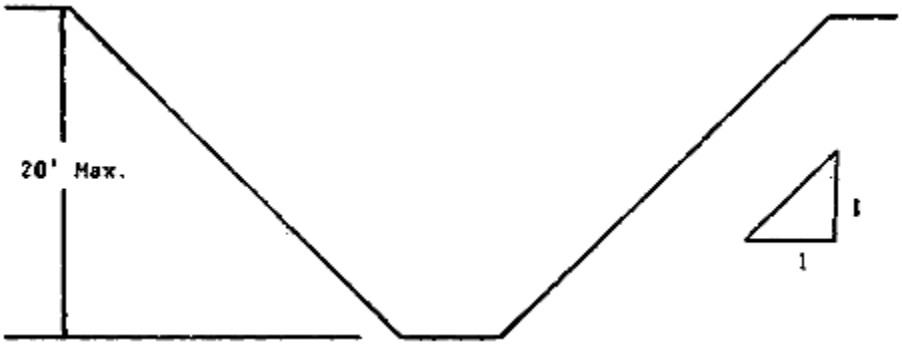
10.1.2 Long Term Trenches In Type A Soil

All simple slope excavation in Type A soil, which are 20 feet, or less in depth, or don't meet the definition of a short term trench describe above, shall have a maximum allowable slope of 3/4:1. The following figure shows the allowable side slope geometry:



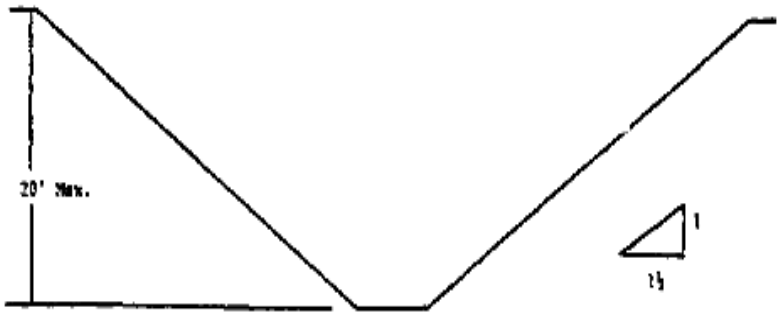
10.1.3 Trenches Less Than 20 Feet Deep In Type B Soil

All simple slope excavation in Type B soil which are 20 feet or less in depth shall have a maximum allowable slope of 1:1. The following figure shows the allowable side slope geometry:



10.1.4 Deep Trenches in Type C Soil

All simple slope excavation in Type C soil which are 20 feet or less in depth shall have a maximum allowable slope of 1.5:1. The following figure shows the allowable side slope geometry:



10.2 Trench Box Installation.

Maxim will have available two trench boxes at the NFSS. The trench boxes will be delivered to the site in good working order and shall be free from damage or defects that might impair their proper function. The trench boxes will be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.

If a trench box is damaged, the Site Manager will examine the material or equipment and evaluate its suitability for continued use. If the site manager cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service.

Members of support systems will be securely connected together to prevent sliding, falling, kickouts, or other predictable failure and support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

The trench boxes will be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

Workers will not be allowed in the trench boxes when the boxes are being installed, removed, or moved vertically.

10.3 Trench Closure

The excavators that will be used for this project have a reach of approximately ten feet. The excavator will excavate a ten-foot section of trench to the planned depth. After that section of trench is completely excavated, the trench will be backfilled, as described in Section 7 and the excavator will be repositioned to excavate the next section of the trench.

11.0 SAMPLE COLLECTION

To minimize the need to enter the trenches, in most cases soil samples will be collected from material in the excavator bucket. If a soil sample is to be collected from the excavator bucket, the sample will be selected from the middle of the bucket and only soil that has not been in contact with the bucket will be used in the sample. If the site conditions do not allow the excavator to collect soil from the desired location in the trench (e.g. from a location immediately adjacent to an underground storage tank) the sample will be collected with a bucket auger.

If site conditions prohibit the collection of a soil sample without entering the trench, the site manager will be notified. The site manager, in consultation with the site safety officer, will determine if the trench should be entered in order to collect the soil sample.

Soils sampling techniques and decontamination procedures have been previously submitted in the Phase I and II Field Sampling Plans and in subsequent addenda.

Specific sample locations within each trench will be determined in the field based on trench monitoring results and field observations.

11.1 Sampling Strategy and Methodology

This sampling plan incorporates a review of the records received from the USACE for the NFSS site and the sampling results from Phase I and Phase II of the NFSS RI. Samples for radiological constituents will be collected from subsurface soil to determine the potential nature and extent of the radiological contamination. Samples for chemical constituents will be used to evaluate the PCOCs for the various trenches.

The following sections describe the methodology to be used in the collection of the samples. Planned sampling activities are described in Section 11.0.

11.2 Subsurface Soil Analytes Selection

Analytes for the subsurface soil samples were selected to correspond with previous phases of the NFSS RI. Specifically, all subsurface soil samples will be analyzed for radiological constituents (including specific isotopic radionuclides and total uranium). Chemical analytes were chosen in the subsurface soil samples to provide information for the PCOCs that were previously identified at the NFSS. Specific analytes for each sample location are shown in Table 2.

Fifty-seven subsurface soil samples will be collected from 19 trenches. The approximate location for each trench has been identified and the specific location of each sample within each trench will be selected during the trenching activities. The field geologist/engineer will submit three samples from each trench for the analyses specified in Table 2. The locations within each trench for the samples will be determined by the geologist/engineer based on the results of the field screening and visual observations made during the trench installation.

An additional 9 samples have been included for asbestos analysis. Locations for these samples will be determined in the field. If a suspect asbestos-containing material (transite pipe, roofing materials, thermal systems insulation, etc.) is found in a trench, the field crew will contact the site manager. The site manager will determine if the suspect material will be sampled and analyzed for asbestos.

12.0 PLANNED ANALYTES, METHODS, AND LABORATORY FOR TRENCHING INVESTIGATION

Samples will be analyzed for:

- volatile organics (by USEPA SW846 Methods 5035/8260B);
- semi-volatile organics (by USEPA SW846 Methods 3550B/8270C);
- pesticides and PCBs (by USEPA SW846 Methods 3550B/8081A/8082);
- TAL metals (by USEPA SW846 Methods 3050B/6010B/7000);
- Mercury (by USEPA SW846 Method 7471A);
- radiological speciation:
  - actinium-227, americium-241, cobalt-60, cesium-137, protactinium-231, radium-226, radium-228, thorium-228, uranium-235, and uranium-238 (by HASL 300 – gamma spectroscopy);
  - thorium-228, thorium-230, thorium-232, and uranium-234, uranium-235, and uranium-238 (by HASL 300 – alpha spectroscopy);
  - plutonium-238, plutonium-239/240 (by HASL 300– alpha spectroscopy. ***Note****: plutonium analysis will only be performed on samples collected from Vicinity Property G*)
- total uranium (by ASTM D5174); and
- nitroaromatics (by USEPA SW846 Method 8330).
- Asbestos (PLM)

With the exception of the asbestos samples, the primary and Quality Control (QC) samples will be shipped to General Engineering Laboratories' laboratory at the following address:

General Engineering Laboratories
Attn: Sample Custodian
3040 Savage Road
Charleston, SC 29407
Telephone: (843) 556-8171
Fax: (843) 766-1178

Asbestos analysis will be performed by:

DataChem Laboratories
Mr. Chris Baugues
4388 Glendale-Milford Road
Cincinnati, OH 45242-3706
(513) 733-5336
(513) 733-5347

However, the asbestos samples will be **shipped to the Maxim-St. Louis office**. The samples will be stored at Maxim's office until General Engineering Laboratories completes the radiological analysis of the samples. The results of the radiological

analysis will be supplied to DataChem Laboratories prior to shipment of the samples to DataChem.

Trenching Field and Sampling Plan Addendum

Vicinity Property G

This addendum describes work practices and sampling protocols that are specific to the investigation at Vicinity Property G. Except as noted below, all aspects of the Trenching FSP are still in force.

Sampling Requirements

The parameter list for samples collected from trenches excavated on Vicinity Property G is as follows:

Radiological Parameters	**Method**
Isotopic Thorium	Alpha Spec, HASL 300
Gamma Spec (*)	HASL 300, Gamma Spec
Isotopic Uranium	Alpha Spec, HASL 300
Gross Alpha	Gas Flow, EPA 900 mod
Gross Beta	Gas Flow, EPA 900 mod
Sr-90	Gas Flow, EPA 900 mod
Isotopic Plutonium	Alpha Spec, HASL 300
Total Activity	Liquid scintillation

*Gamma Spec (Ra-226 and Ra-228, also U-235, U-238, Th-228, Pa-231, Ac-227, Co-60, Cs-137, Am-241)

Chemical Parameters	**Method**
Volatiles	5035/8260
Semi-Volatiles	3550B/8270
Pesticides/PCB's	3350B, 8081/8082
Metals (TAL)	6010/7000
Nitroaromatics (If Required)	8330

The collection of samples for this task deviates from the previous plan in that radiological and chemical samples need not be collocated. Because of this change, radiological and chemical samples are assigned different sample names. These samples are shown on Table 2. The locations of the radiological samples will be based on both the results of the field radiological screening and on the conditions encountered in each trench. The locations of the chemical samples will be based on PID results and other evidence of contamination such as staining, odor, etc. Samples (both radiological and chemical) may also be collected from areas of special interest in a trench, such as the trench bottom or adjacent to a sand lens or other subsurface hydraulic conduit.

Samples of soil, animal carcasses, and laboratory debris will be collected from the trenches and submitted for analysis. With the exception of the animal carcass samples submitted for chemical analysis, all samples will be grab samples. The animal carcass samples submitted for chemical analysis will be composited from all animal carcasses found in each trench. To the extent possible, each animal carcass sample submitted for radiological analysis will be collected from an individual carcass.

After sampling, all animal carcasses will be placed back in the trenches from which they were excavated.

All laboratory debris samples will be collected using wooden or stainless steel spatulas.

If soil staining or other evidence indicates that nitroaromatic compounds may be present at the work sites, potentially impacted soil will be field screened as described in Section 9. **If the field screening results indicate that explosive compounds are present, up to two samples may be submitted for analysis**.

Spoils Pile Management

Excavated soil will be handled in accordance with Section 6.0 of this plan, with the additional requirement that the spoils pile must be managed in a manner that minimizes potential dust generation. If necessary, the spoils pile will be misted with water.

Laboratory Debris and Liquid IDW Disposal

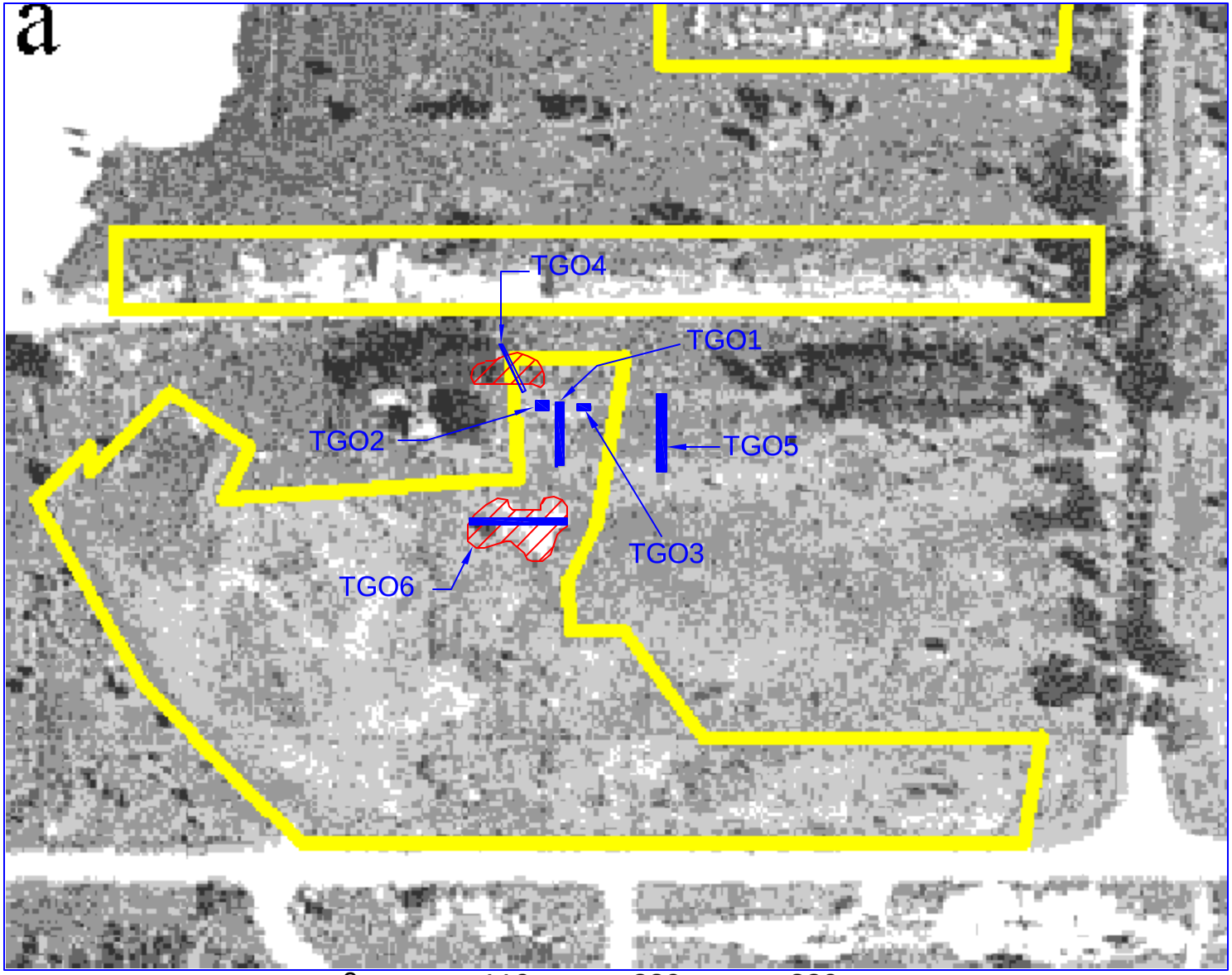
All laboratory debris discovered while excavating the trenches will be containerized in open-top 55 gallon UN1A drums for later shipment to Waste Control Specialists, Inc. To the extent possible, while containerizing laboratory debris, the drums will be staged at the transition between the support zone and the exclusion zone. As drums are filled, they will be transported to the drum storage area at the NFSS using the USACE owned Bobcat or the excavator. One composite sample of the drummed laboratory debris will be collected and submitted for the following analysis:

Parameter	***Method***
TCLP VOA Ext.	*1311*
TCLP-VOA	*8260*
TCLP Ext. (non-VOA)	*1311*
TCLP-SVOC	*8270*
TCLP-Pesticides	*8081*
TCLP-Herbicides	*8151*
TCLP-Metals	*6010/7000*
Ignitability	*SW846-1110*
Corrosivity as pH	*9045*
Reactivity	*Sec. 7.3*

All IDW water generated during this investigation will be stored in the Liquid IDW tanks located near the job site trailer. IDW water from this task will be stored in the tank that currently contains IDW water from the previous Vicinity Property G investigation. If the volume of the tank currently assigned to Vicinity Property G IDW water is insufficient, another currently empty tank will be used and will be dedicated to this task. IDW water from this task will not be mixed with IDW water generated from other tasks not performed at Vicinity Property G. At the conclusion of this task, a composite sample of the Vicinity Property G IDW water will be collected and submitted for the following analyses:

Parameter	***Method***
Volatiles	*5030B/8260*
Semi-Volatiles	*3510C/8270*
Pesticides/PCB's	*3510CC, 8081/8082*
Metals(TAL) Total	*6010/7000*
Metals(TAL) Dissolved	*6010/7000*
Isotopic Thorium	*Alpha Spec, HASL 300*
Ra-226	*EPA 903.1 Mod Radon Emanation*
Gamma Spec (*)	*Gamma Spec*
U-235/238	*Alpha Spec, HASL 300*
Gross Alpha	*Gas Flow, EPA 900*
Gross Beta	*Gas Flow, EPA 900*
Sr-90	*Gas Flow, EPA 900*
Total Activity	*Liquid Scintillation*

*Gamma Spec (Ra-226 and Ra-228, also U-235, U-238, Th-228, Pa-231, Ac-227, Co-60, Cs-137, Am-241)



Legend

- Trench location

- Spoil Pile

Image Source: US Department of Agriculture, ARE-2V-6, 9 August 1958.

0 110 220 330

Scale In Feet

VICINITY PROPERTY G
TRENCHING LOCATIONS

NIAGARA FALLS STORAGE SITE
NIAGARA COUNTY, NEW YORK

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 9905006	FIGURE #: 1
SCALE: As Shown	DATE: 08/20/2002
DRAWN BY: K. Dickens	CHECKED BY: GCD

Table 1
Vicinity Property G Trenching Investigation
September, 2002

Trench	Location	Length (feet)	Maximum Depth* (feet)	Remarks
TG01	88' east of old farmhouse	65	12	Investigation of 'University of Rochester Burial Site'
TG02	Immediately west of TG01	6	4	Excavate and prepare for disposal lab debris found in 5/02
TG03	Immediately east of TG01	10	4	Investigate 60 KCPM hotspot discovered in 5/02.
TG04	Approximately 40' northwest of TG01	30	2' into native soil	Trench through existing spoils pile.
TG05	200' east of old farmhouse	50	12	Depressed area, may be a former disposal pit
TG06	140' south of old farmhouse	100	12	Historical aerial photographs show a disturbed area south of farmhouse.

* Field geologist may terminate trench depth short of planned depth if native soil is encountered and no evidence of

Table 2
Vicinity Property G Samples

Sample Number	Media	Field QC or MS/MSD Samples	Chemical Parameters[2]	Radiological Parameters[1]	Remarks	Date Collected	Time Collected
TBG01- 3000 -xx.x-xxx[3]	Soil			x			
TBG01- 9000 -xx.x-xxx	Soil	Rad soil QC for 3000		x			
TBG01- 3001 -xx.x-xxx	Soil	Rad Soil MS/MSD		x			
TBG01- 3002 -xx.x-xxx	Soil			x			
TBG01- 3003 -xx.x-xxx	Soil			x			
TBG01- 3004 -xx.x-xxx	Soil			x			
TBG01- 3005 -xx.x-xxx	Soil		x				
TBG01- 9005 -xx.x-xxx	Soil	Chem soil QC for 3005	x				
TBG01- 3006 -xx.x-xxx	Soil	Chem Soil MS/MSD	x				
TBG01- 3007 -xx.x-xxx	Soil		x				
ACG01- 3008 -xx.x-xxx	Carcass			x			
ACG01- 9008 -xx.x-xxx	Carcass	Rad Carcass QC for 3008		x			
ACG01- 3009 -xx.x-xxx	Carcass	Rad Carcass MS/MSD		x			
ACG01- 3010 -xx.x-xxx	Carcass			x			
ACG01- 3011 -xx.x-xxx	Carcass		x[7]				
ACG01- 9011 -xx.x-xxx	Carcass	Chem Carcass QC for 9011	x				
LDG01- 3012 -xx.x-xxx	Lab Debris			x			
LDG01- 3013 -xx.x-xxx	Lab Debris			x			
LDG01- 3014 -xx.x-xxx	Lab Debris			x			
TBG02- 3015 -xx.x-xxx	Soil			x			
TBG02- 3016 -xx.x-xxx	Soil		x				
LDG02- 3017 -xx.x-xxx	Lab Debris	Rad Lab Debris MS/MSD		x			
LGG02- 9017 -xx.x-xxx	Lab Debris	Rad Lab Debris QC for 3017		x			
TBG03- 3018 -xx.x-xxx	Soil	Rad Soil MS/MSD		x			
TBG03- 3019 -xx.x-xxx	Soil		x				
ACG03- 3020 -xx.x-xxx	Carcass			x			
ACG03- 3021 -xx.x-xxx	Carcass			x			
ACG03- 3022 -xx.x-xxx	Carcass			x			
ACG03- 3023 -xx.x-xxx	Carcass	Chem Carcass MS/MSD	x				
LDG03- 3024 -xx.x-xxx	Lab Debris			x			

Sample Number	Media	Field QC or MS/MSD Samples	Chemical Parameters[2]	Radiological Parameters[1]	Remarks	Date Collected	Time Collected
TBG04- 3025 -xx.x-xxx	Soil			x			
TBG04- 3026 -xx.x-xxx	Soil			x			
TBG04- 3027 -xx.x-xxx	Soil			x			
TBG04- 3028 -xx.x-xxx	Soil			x			
TBG04- 9028 -xx.x-xxx	Soil	Rad Soil QC for 3028		x			
TBG04- 3029 -xx.x-xxx	Soil			x			
TBG04- 3030 -xx.x-xxx	Soil		x				
TBG04- 3031 -xx.x-xxx	Soil		x				
TBG04- 3032 -xx.x-xxx	Soil		x				
ACG04- 3033 -xx.x-xxx	Carcass			x			
ACG04- 3034 -xx.x-xxx	Carcass			x			
ACG04- 3035 -xx.x-xxx	Carcass			x			
ACG04- 3036 -xx.x-xxx	Carcass		x				
LDG04- 3037 -xx.x-xxx	Lab Debris			x			
LDG04- 3038 -xx.x-xxx	Lab Debris			x			
LDG04- 3039 -xx.x-xxx	Lab Debris			x			
TBG05- 3040 -xx.x-xxx	Soil			x			
TBG05- 3041 -xx.x-xxx	Soil			x			
TBG05- 3042 -xx.x-xxx	Soil			x			
TBG05- 3043 -xx.x-xxx	Soil			x			
TBG05- 3044 -xx.x-xxx	Soil			x			
TBG05- 3045 -xx.x-xxx	Soil		x				
TBG05- 3046 -xx.x-xxx	Soil		x				
TBG05- 3047 -xx.x-xxx	Soil		x				
TBG05- 9047 -xx.x-xxx	Soil	Chem Soil QC for 3047	x				
ACG05- 3048 -xx.x-xxx	Carcass			x			
ACG05- 9048 -xx.x-xxx	Carcass	Chem Carcass QC for 3048		x			
ACG05- 3049 -xx.x-xxx	Carcass			x			
ACG05- 3050 -xx.x-xxx	Carcass			x			
ACG05- 3051 -xx.x-xxx	Carcass		x				
LDG05- 3052 -xx.x-xxx	Lab Debris			x			
LDG05- 3053 -xx.x-xxx	Lab Debris			x			
LDG05- 3054 -xx.x-xxx	Lab Debris			x			

Sample Number	Media	Field QC or MS/MSD Samples	Chemical Parameters[2]	Radiological Parameters[1]	Remarks	Date Collected	Time Collected
TBG06- 3055 -xx.x-xxx	Soil			x			
TBG06- 3056 -xx.x-xxx	Soil			x			
TBG06- 3057 -xx.x-xxx	Soil	Rad Soil MS/MSD		x			
TBG06- 3058 -xx.x-xxx	Soil			x			
TBG06- 9058 -xx.x-xxx	Soil	Rad Soil QC for 3058		x			
TBG06- 3059 -xx.x-xxx	Soil			x			
TBG06- 3060 -xx.x-xxx	Soil		x				
TBG06- 3061 -xx.x-xxx	Soil		x				
TBG06- 3062 -xx.x-xxx	Soil		x				
ACG06- 3063 -xx.x-xxx	Carcass			x			
ACG06- 3064 -xx.x-xxx	Carcass			x			
ACG06- 3065 -xx.x-xxx	Carcass			x			
ACG06- 3066 -xx.x-xxx	Carcass		x				
LDG06- 3067 -xx.x-xxx	Lab Debris			x			
LDG06- 9067 -xx.x-xxx	Lab Debris	Rad Lab Debris QC for 3067		x			
LDG06- 3068 -xx.x-xxx	Lab Debris			x			
LDG06- 3069 -xx.x-xxx	Lab Debris			x			
?????- 3070 -xx.x-xxx	TBD[5]			x			
?????- 3071 -xx.x-xxx	TBD			x			
?????- 3072 -xx.x-xxx	TBD			x			
?????- 3073 -xx.x-xxx	TBD			x			
?????- 3074 -xx.x-xxx	TBD			x			
?????- 3075 -xx.x-xxx	TBD		x				
?????- 3076 -xx.x-xxx	TBD		x				
?????- 3077 -xx.x-xxx	TBD		x				

1) Radiologic Parameters: Gamma Spec (Ra-226 and Ra-228, also U-235, U-238, Th-228, Pa-231, Ac-227, Co-60, Cs-137, Am-241), Gross Alpha/Beta, Isotopic Uranium, Isotopic Thorium, Isotopic Plutonium, Strontium-90, and Total Activity.

2) Chemical Pararmeters: SVOC, VOC, Total Metals, and Pest/PCB. Up to two samples, to be determined in the field, may also be submitted for nitroaromatic analysis.

3) The "XX.X-XXX" in each sample number indicates the the sample depth and sample distance from the "A" end of a trench.

4) If a sample is collected from a depth less than 0.5 feet, the sample name prefix will be changed to "TS", to signify that this sample is a 'surface' sample.

5) Sample Location and Media to be determined in the field.

6) Not all of the above samples may be collected. If samples are not collected, the QC frequency may be amended in the field

7) The animal carcass sample collected for chemical analysis will be a composite of all carcasses found in the trench.

Appendix A

Example Trench Field Documentation Form

Maxim Trenching Documentation Form, Page 1 of ___

Site: NFSS _____ Date: _____

Trench ID: _____ SSO: G.C. Dawdy _____

Trench Entered (y or n): Trench Entered By: _____

Trench Depth: _____ Competent Person: _____

Soil Type: _____

Samples Collected: _____

Sample Collection Method: _____

_____

Atmospheric Monitoring:

Location	$\%O_2$	%LEL	%Toxics	PID	Remarks

Nitroaromatics Testing:

		Concentration	
Location Dist./Depth	Present (y/n)	> 5% (y/n)	> 10% (y/n)

Additional Notes or Drawings **Page ___ of ___**

Trench: _____

Appendix B
Geophysical Results

This file emailed separately as *EM61 Memo.pdf*

Memo

An Employee-Owned Company

Date: May 13 2002

To: **Brad Richardson**
From: **Rick Hoover, P.G.**

Signature Invalid

Digitally signed by Rick Hoover
Date: 2002.05.13 12:21:22 -04'00'
Reason: I am the author of this document

Subject: NFSS EM-61 Survey

On May 7 and 8, 2002, SAIC performed a series of focused EM61 survey at the Niagara Falls Storage Site. The objective of the survey was to identify and delineate subsurface metals at proposed trench locations. Reporting is required in a timely fashion since excavation activities are scheduled. The trench locations were recommended to ACOE by Maxim based on our regional geophysical survey information as well as historical information. The objective of the trenching is to locate underground storage tanks as well as piping and similar features. Seventeen locations were chosen for detailed investigation as shown on Table 1. One location (Trench 403) was found submerged and contained significant amounts of sheet metal at the ground surface. This location was not geophysically surveyed due to the interference from the sheet metal at the location of interest.

Endpoints for proposed trench locations were provided by Maxim. These coordinates were converted to metric units and uploaded into a global positioning system. Each trench end was located using the GPS, and a wooden stake was placed into the ground. Each area was surveyed using a meandering path technique. Positions of data collection were gathered using a GPS system synchronized with the EM61 data collection. Position and sensor data were collected at 1-second intervals. At two locations (Trench T-302 and T-304) proposed locations were adjusted due to geophysical anomaly location and access limitations. In addition, previously identified magnetometer anomaly P and Q were surveyed on the storage site waste containment structure.

Each trench was surveyed as access permitted. Some of the proposed trench locations were inaccessible to the EM61 sensor and operator. In these instances, accessible areas surrounding the proposed trench location were surveyed.

Following data collection, the EM61 data was normalized to present a 0 milli-volt (mV) baseline response. The difference between the top and bottom coils was calculated for presentation on the attached maps. In addition, the differences were used to estimate depths to metallic materials in the subsurface at this site.

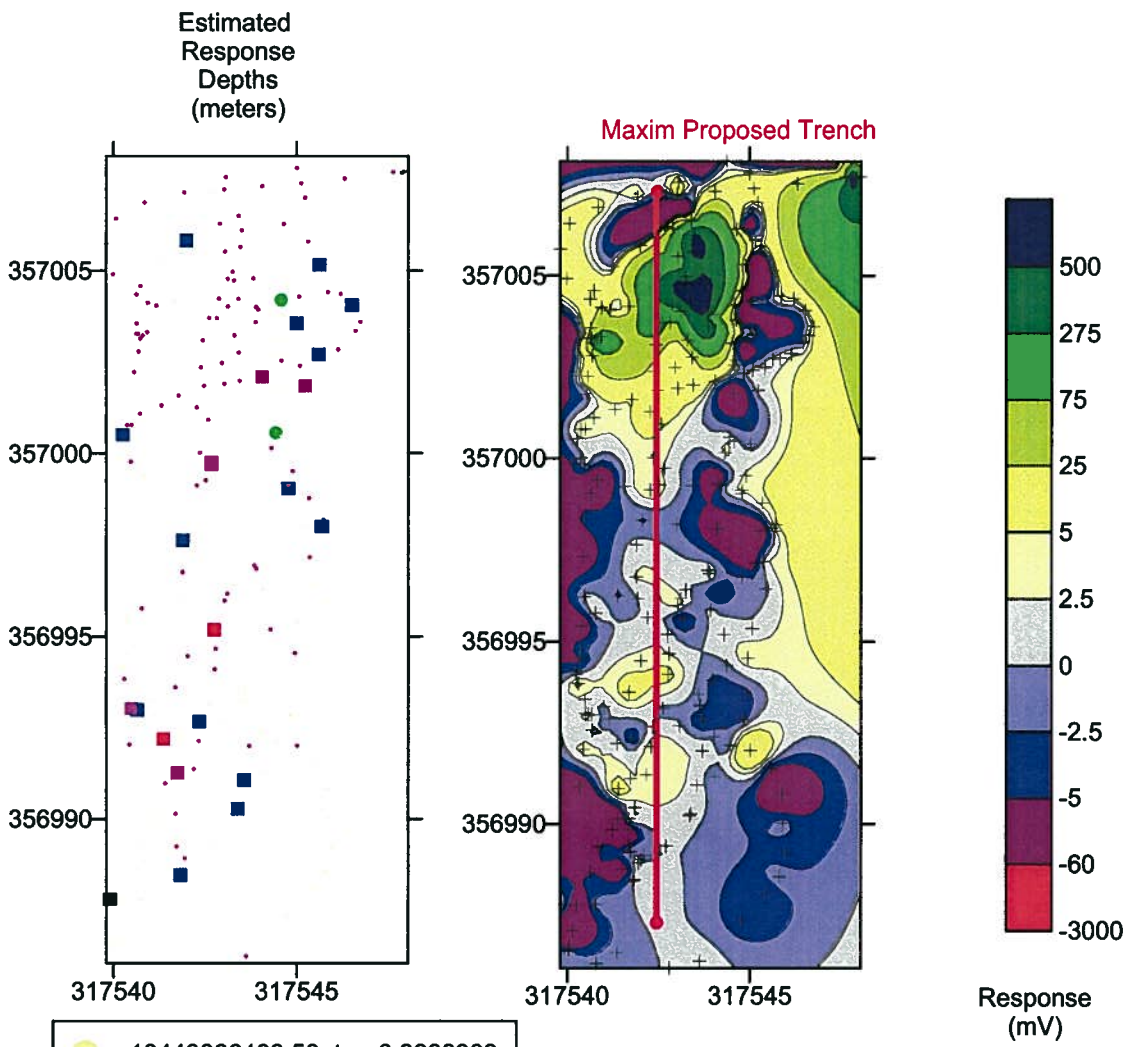
Survey maps are shown on the attached figures, with the results summarized on Table 1. The location of each sensor measurement is shown on the map. The maps present the differential response, which is the top sensor coil minus the bottom sensor coil. In the case of surface metals, negative values are presented.

Depths to anomalous features are shown as appropriate. Depth calculations are approximate. The accuracy of estimation depends on the relationship between the measurement location (the center of the sensor coils) and the center, size and shape of the target. The depth calculation is a seventh order polynomial based upon a theoretical dipolar response. The calculation assumes that the target is much smaller (i.e. 20-30 cm) than the coil size. For larger targets, the calculation will provide depths greater than the actual measured depths. Therefore, locations should be estimated based upon the contoured data. Due to the unknown nature of the metallic response, depth estimates should be used with extreme caution. Depths where applicable, are shown in the attached Figures.

In general, waste and debris pile areas exhibited scattered discontinuous metallic responses consistent with waste burial. Trench 406 presented the only discernable large continuous subsurface metallic feature. No apparent underground storage tanks are readily interpreted in the data.

EM61 Survey Summary
Niagara Falls Storage Site

Figure	Trench	Results	Field Notes	Purpose
1	T202	Scattered metals	Small anomaly northern end (Dumpsters?)	Building 401 area, Sewer grated inlet and piping
2	T203	Discontinuous linear features	Two linear features	Building 401 area, Potential UST
3	T301	Scattered metals	Scattered metals, mass to south	Pipeline from former rail line and suspected UST
4	T302	Scattered metals	Scattered metals west side of trench	Debris pile investigation
5	T303	Minor small metal fragments near road	Access limited	Suspected UST
6	T304	No significant metals	Poss. Pipe like anomaly perpendicular to building	Former garage/maintenance area. Concrete sump, piping and UST
7	T404	Scattered buried metals	Scattered metal fragments South & East	Sewer and underground piping, debris pile
8	T406	Scattered surface metals	Variable surface metals	Debris pile investigation
9	T408	No Metals 0-5.1 meters	Isolated feature west end	Debris pile investigation
10	T410	Scattered surface metals	Nothing Special	Potential UST location
11	T411	No Metals 0-5.1 meters	Nothing special here.....	Disturbed ground in former Storage Area
12	T412	Scattered, discontinuous metals	Random metals	Disturbed ground in former Storage Area
13	T413	Scattered, discontinuous metals	north/south Metals at start & 2/3 way across	Disturbed ground in former Storage Area
14	T414	Near Surface metals scattered about	Lots of metals in area	Debris pile investigation
15	T501	Scattered, discontinuous metals, most responses are surface concrete.	Surface responses reinforced. Conc.	Elevated gamma and building foundations
16	T808	Near Surface Metals in North	Pipe? In north	Suspected organic burial area
17	MagPQ	Scattered metals	Discrete features	Magnetic Anomaly P and Ç



-13443866433.53 to -0.9999999
0 to 0.9999999
1 to 1.9999999
2 to 2.9999999
3 to 3.99999999
4 to 4.9999999
5 to 1.049E+022

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

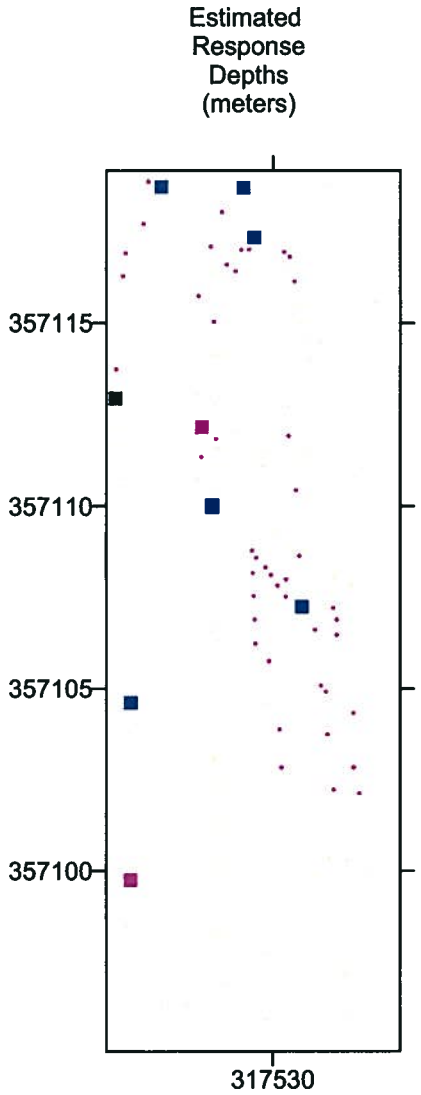
www.quality-geophysics.com

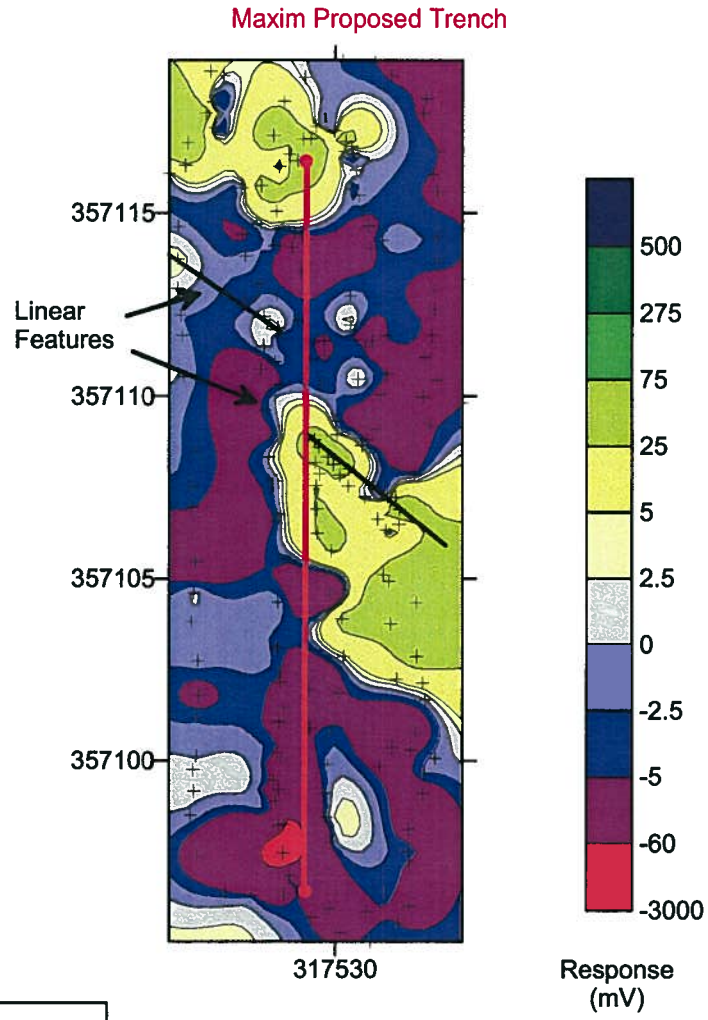
Niagara Falls Storage Site
Lewiston, New York

Trench 202 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no.
date 05/09/02	date 05/10/02	date	1
job no. 01-1408-08-9812-900		file no. T202.SRF	

Science Applications International Corporation
An Employee-Owned Company





Scale (meters)

0 1 2 3 4 5

N

-1.45635800998526E+016 to -0.9999999
0 to 0.9999999
1 to 1.999999
2 to 2.9999999
3 to 3.99999999
4 to 4.9999999
5 to 116000000000000

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site

Lewiston, New York

Trench 203 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no.
date 05/09/02	date 05/10/02	date	2
job no. 01-1408-08-9812-900		file no. T203.SRF	

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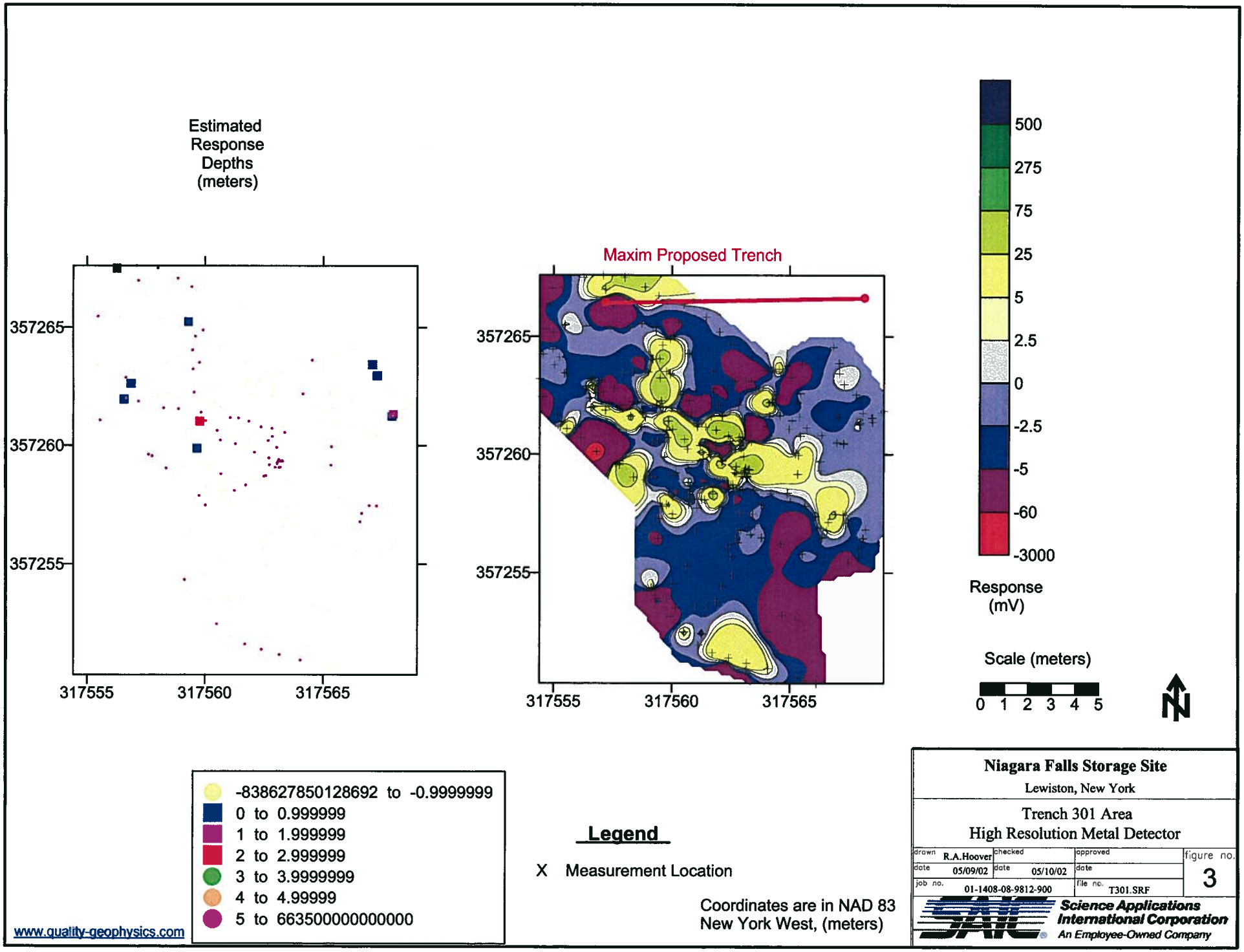
Estimated Response Depths (meters)
357265
357260
357255
317555
317560
317565
Maxim Proposed Trench
357265
357260
357255
317555
317560
317565
500
275
75
25
5
2.5
0
-2.5
-5
-60
-3000
Response (mV)
Scale (meters)
0 1 2 3 4 5
N
-838627850128692 to -0.9999999
0 to 0.999999
1 to 1.999999
2 to 2.999999
3 to 3.9999999
4 to 4.99999
5 to 663500000000000
Legend
X Measurement Location
Coordinates are in NAD 83
New York West, (meters)
www.quality-geophysics.com
Niagara Falls Storage Site
Lewiston, New York
Trench 301 Area
High Resolution Metal Detector
drawn R.A.Hoover
checked
approved
date 05/09/02
date 05/10/02
date
figure no. 3
job no. 01-1408-08-9812-900
file no. T301.SRF
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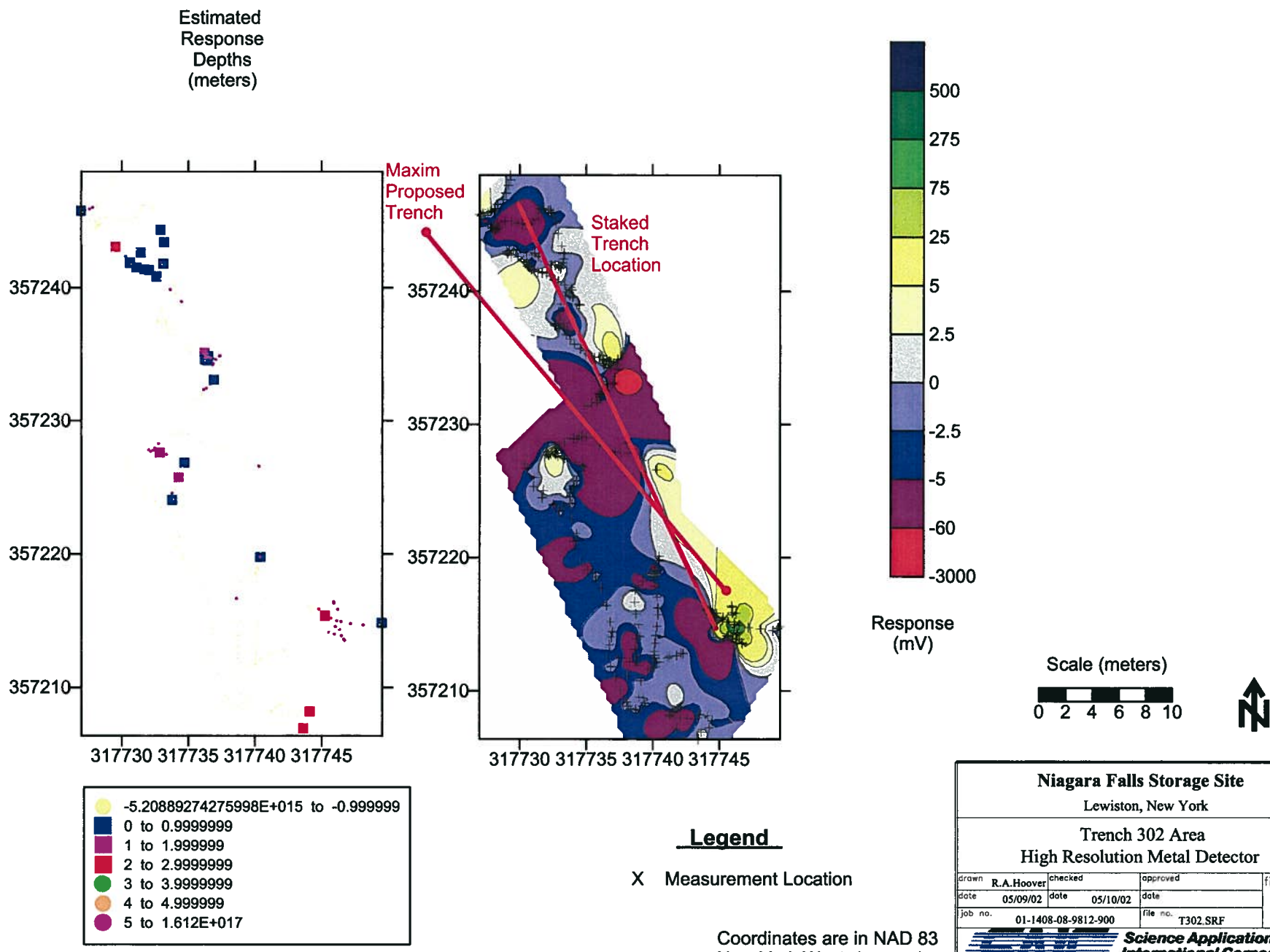

Niagara Falls Storage Site

Lewiston, New York

Trench 302 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 4
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T302.SRF	

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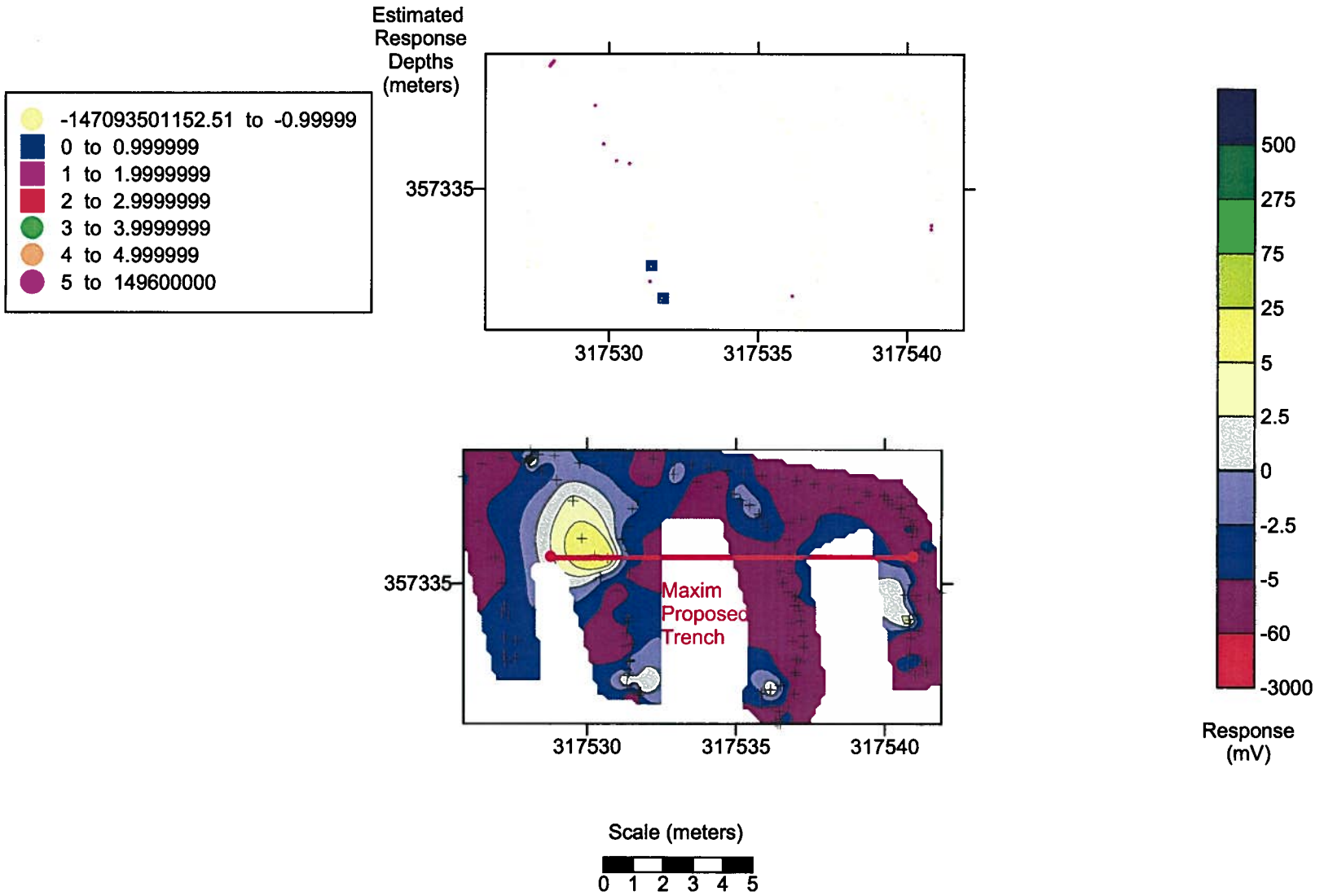

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site
Lewiston, New York

Trench 303 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 5
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T303.SRF	

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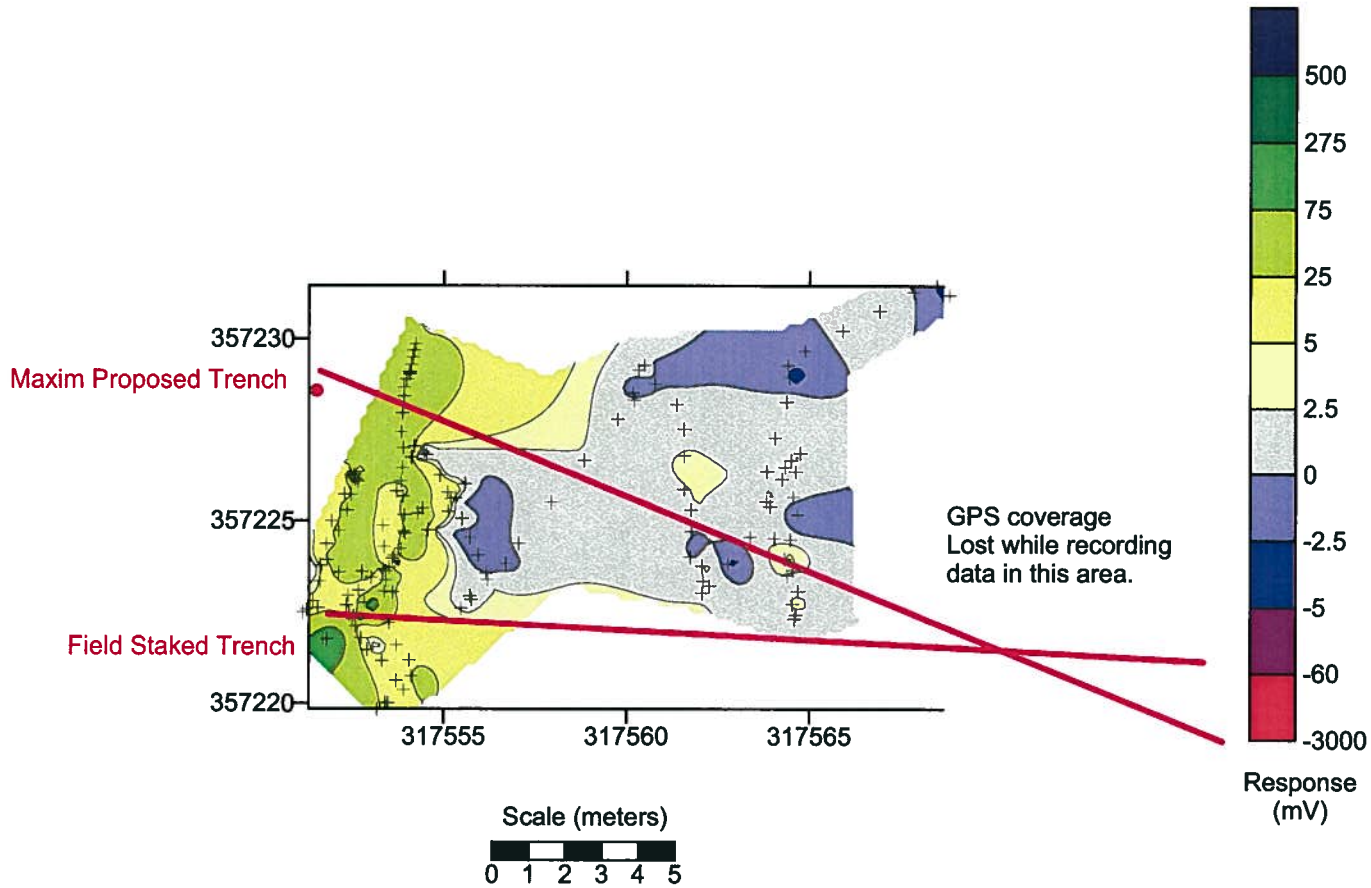

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site
Lewiston, New York

Trench 304 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no.
date 05/09/02	date 05/10/02	date	6
job no. 01-1408-08-9812-900		file no. T304.SRF	

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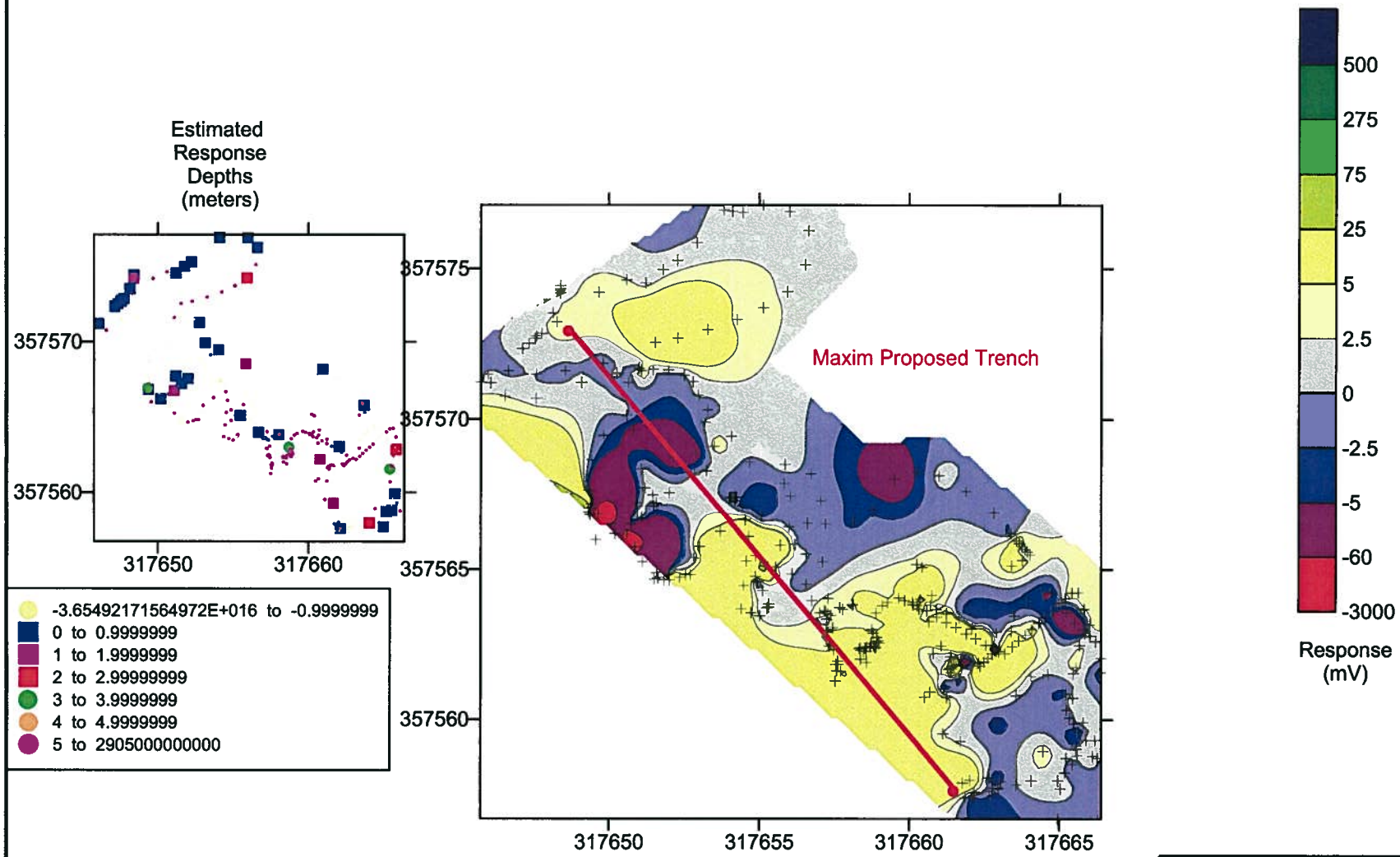

Legend

X Measurement Location

Scale (meters)

0 1 2 3 4 5

Coordinates are in NAD 83
New York West, (meters)

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Niagara Falls Storage Site

Lewiston, New York

Trench 404 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 7
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T404.SRF	

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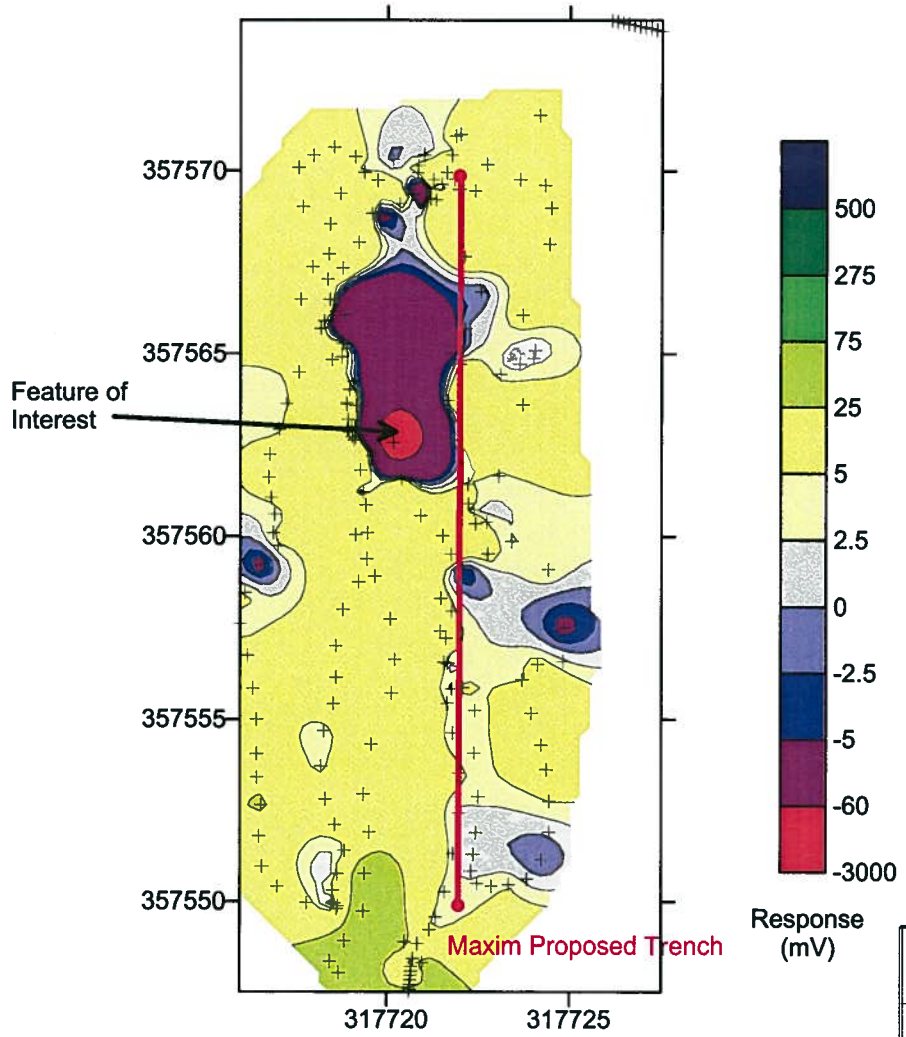

Scale (meters)

0 1 2 3 4 5

N

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site

Lewiston, New York

Trench 406 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 8
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T406.SRF	

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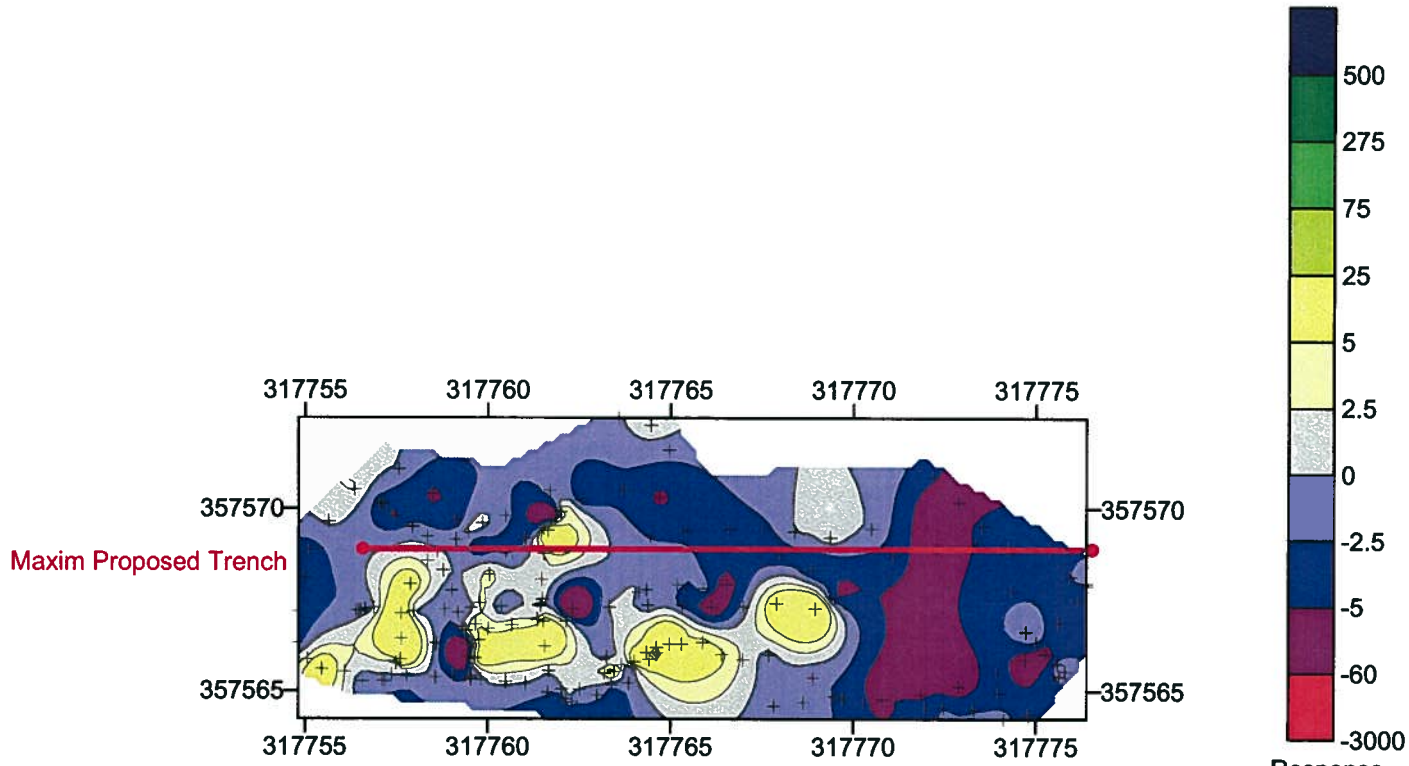

Legend

X Measurement Location

Scale (meters)

0 1 2 3 4 5

N

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site

Lewiston, New York

Trench 408 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 9
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T408.SRF	

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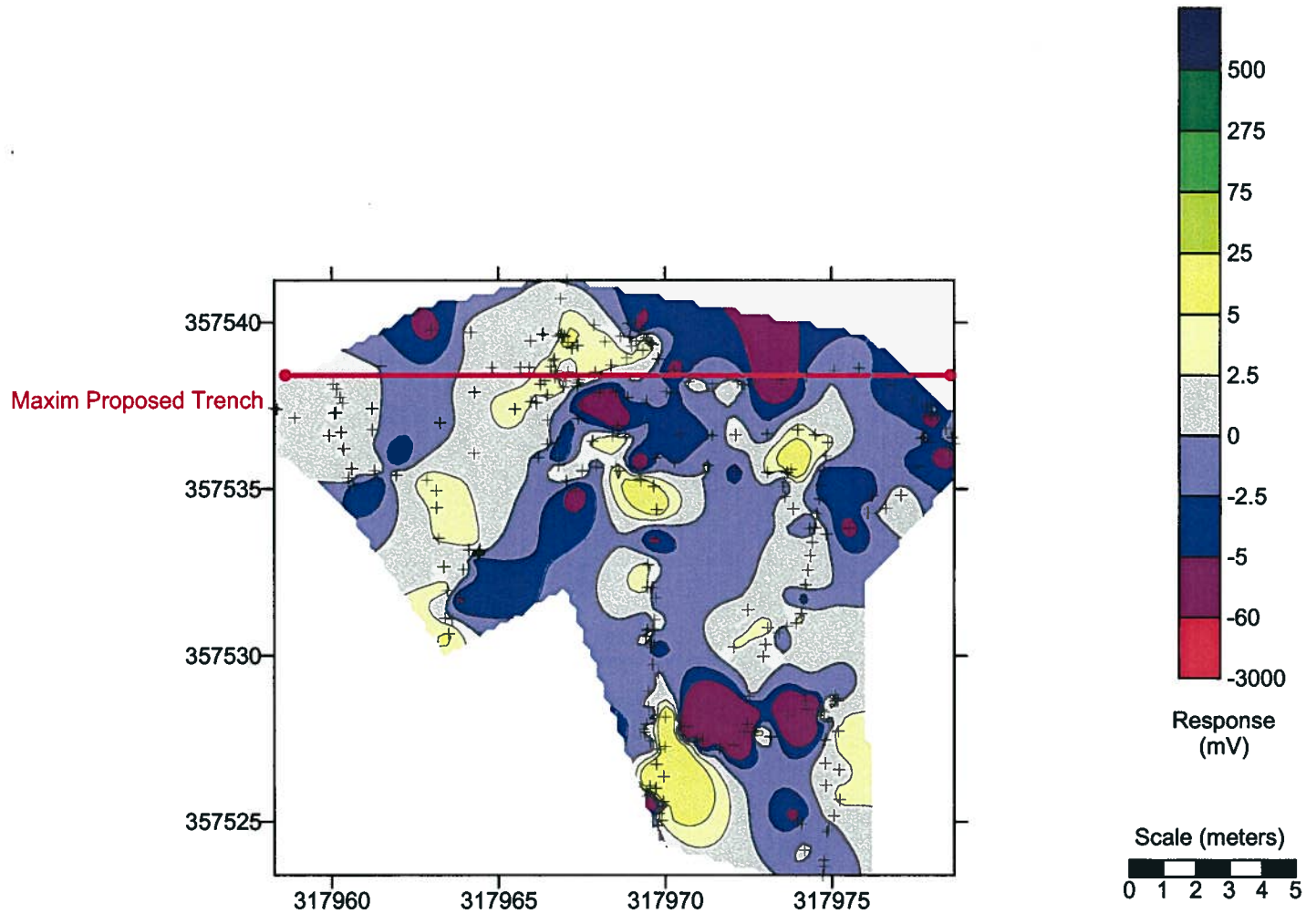

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

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Niagara Falls Storage Site
Lewiston, New York

Trench 410 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no.
date 05/09/02	date 05/10/02	date	10
job no. 01-1408-08-9812-900		file no. T410.SRF	

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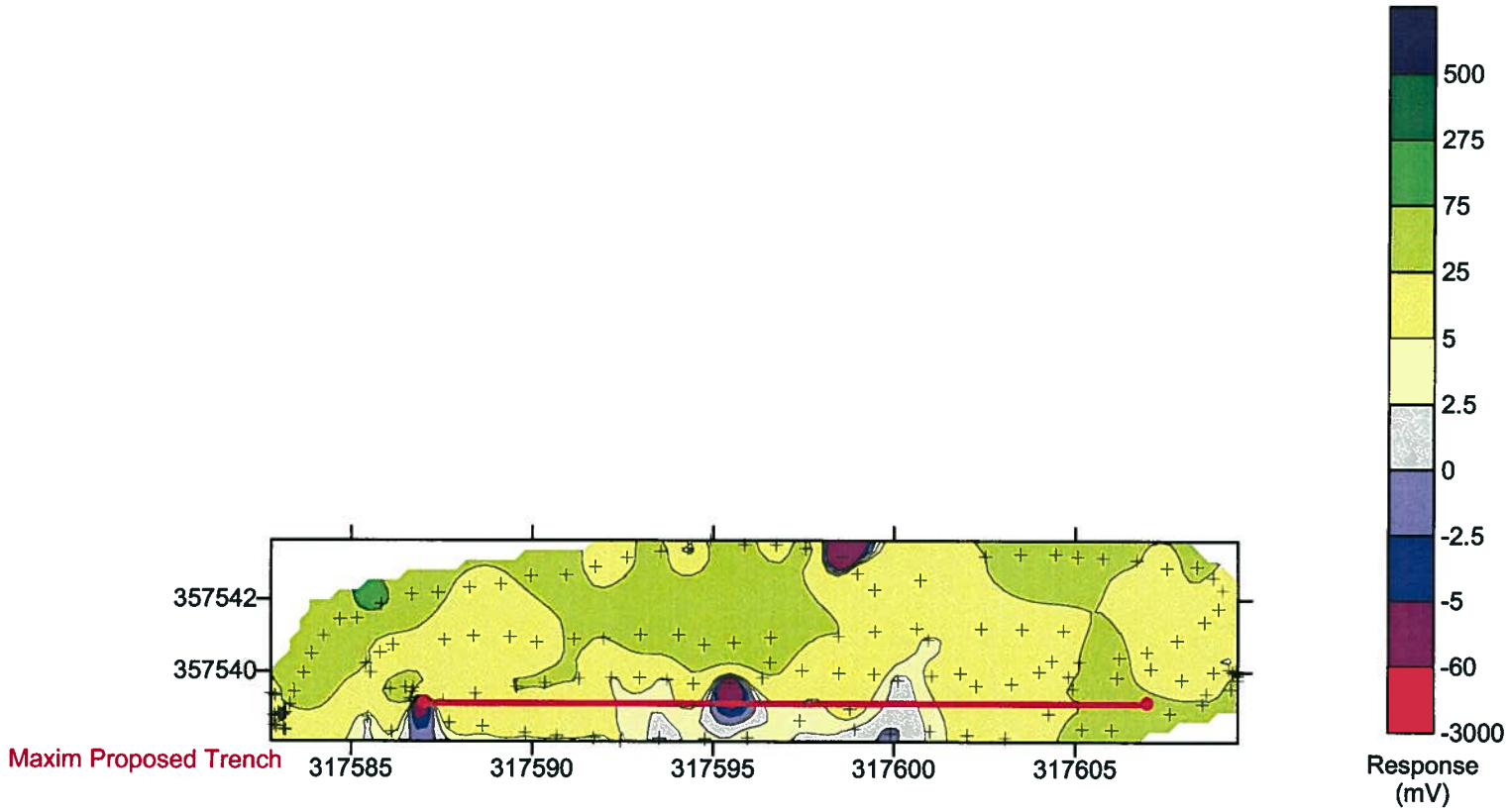

Scale (meters)

0 1 2 3 4 5

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site
Lewiston, New York

Trench 411 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 11
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T411.SRF	

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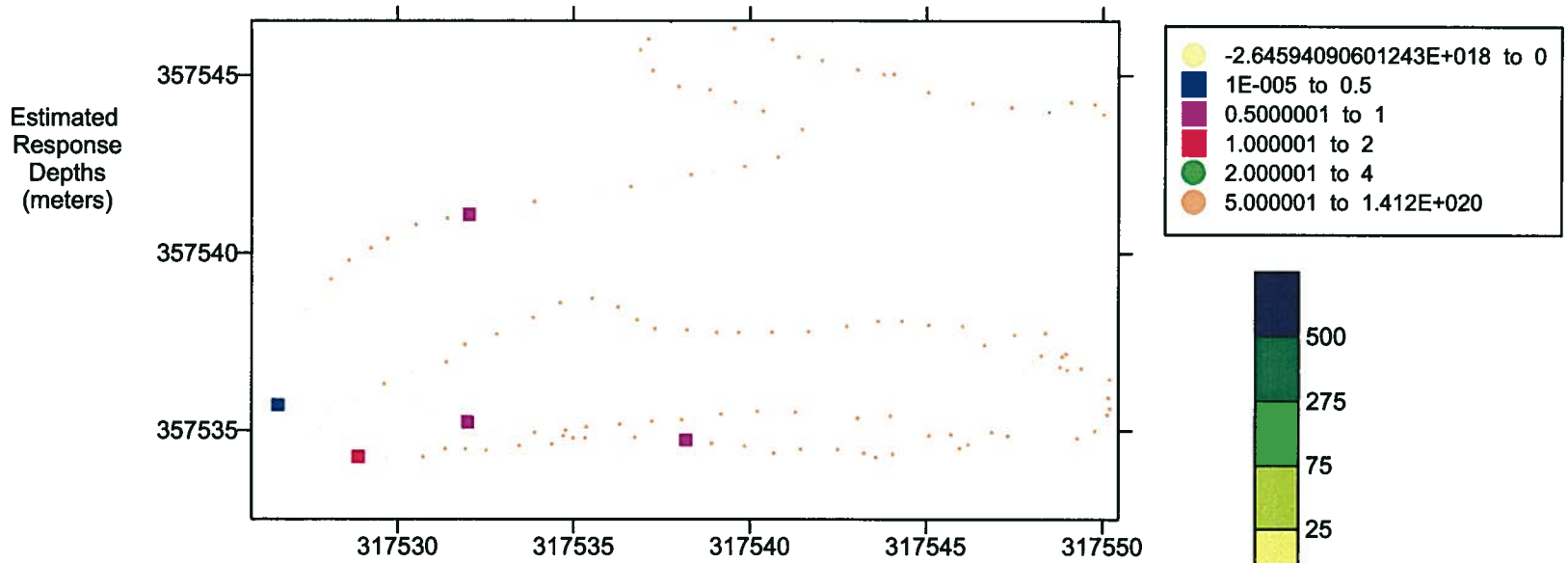

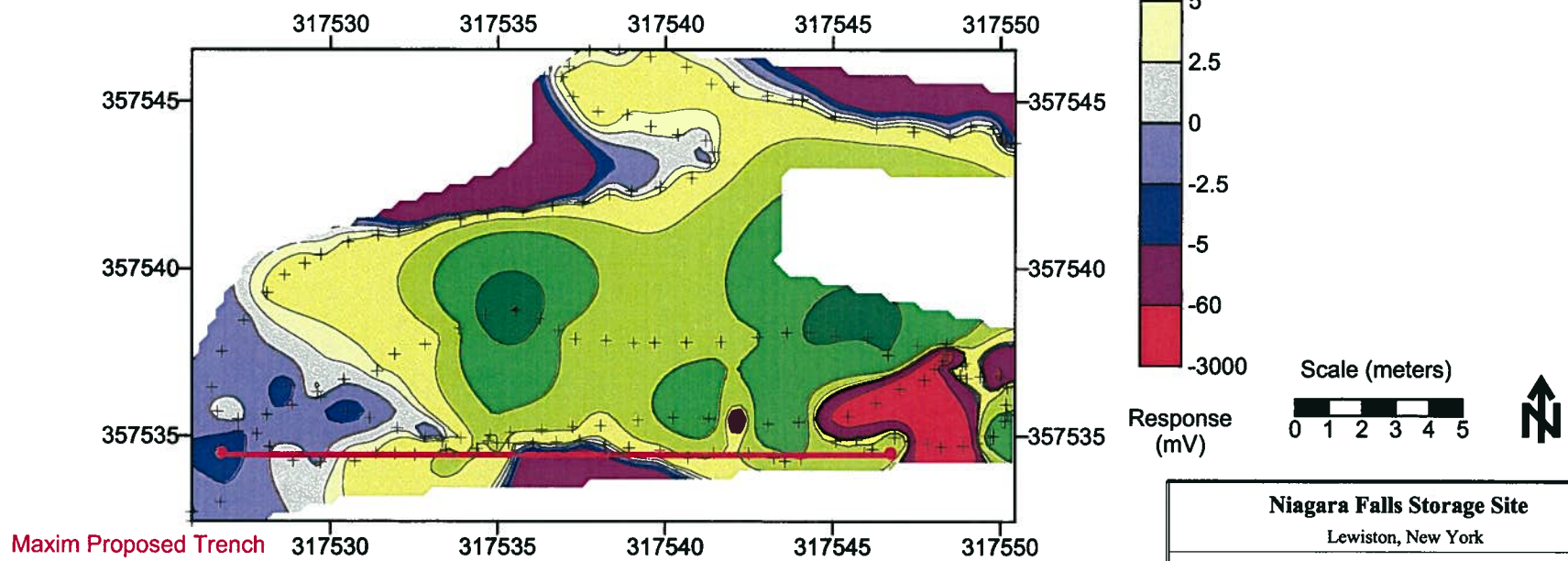

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site
Lewiston, New York

Trench 412 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 12
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T412.SRF	

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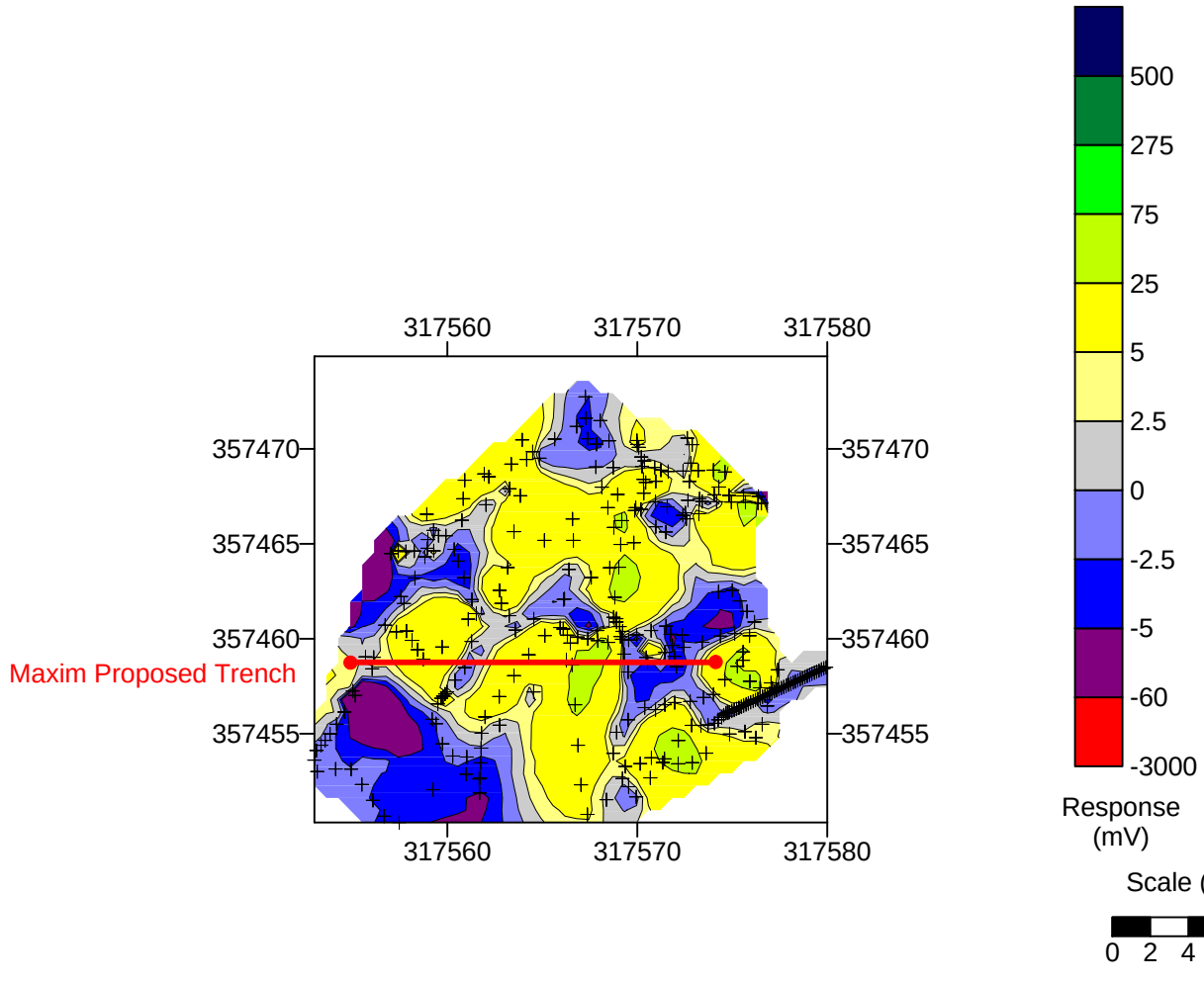

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site

Lewiston, New York

Trench 413 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no.
date 05/09/02	date 05/10/02	date	13
job no. 01-1408-08-9812-900		file no. T413.SRF	

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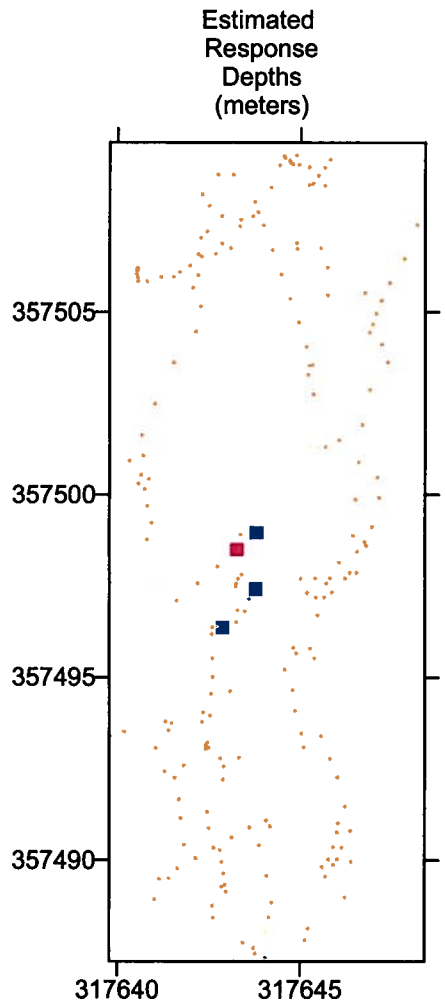

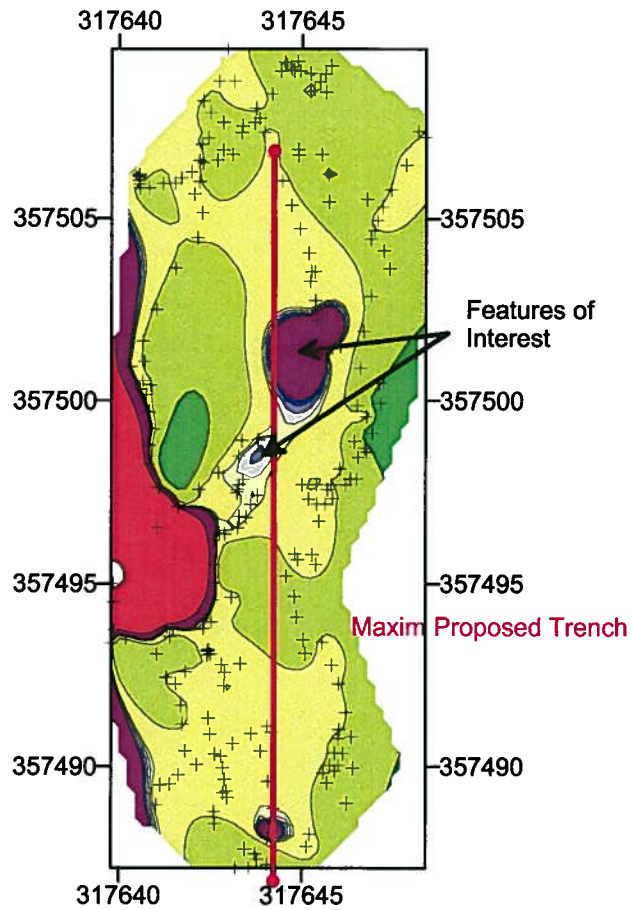

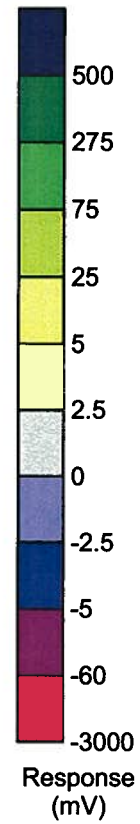

Scale (meters)

0 1 2 3 4 5

N

-1.37018615246795E+026 to 0
1E-010 to 2
2.000000001 to 3
3.00000001 to 4
4.000000001 to 5
5.0000001 to 1.127E+016

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site
Lewiston, New York

Trench 414 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 14
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T414.SRF	

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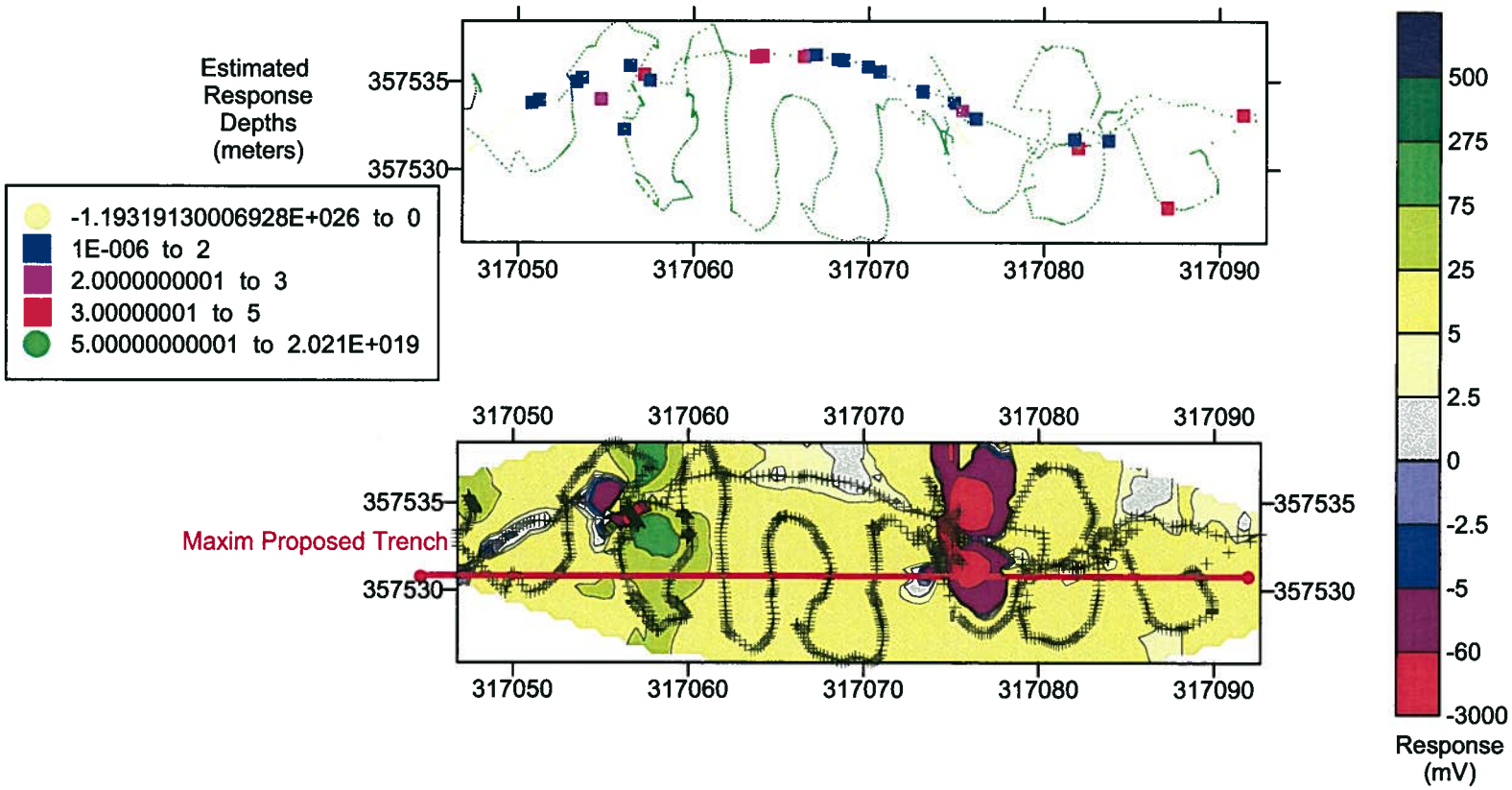

Scale (meters)

0 2 4 6 8 10

N

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site

Lewiston, New York

Trench 501 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no.
date 05/09/02	date 05/10/02	date	15
job no. 01-1408-08-9812-900		file no. T501.SRF	

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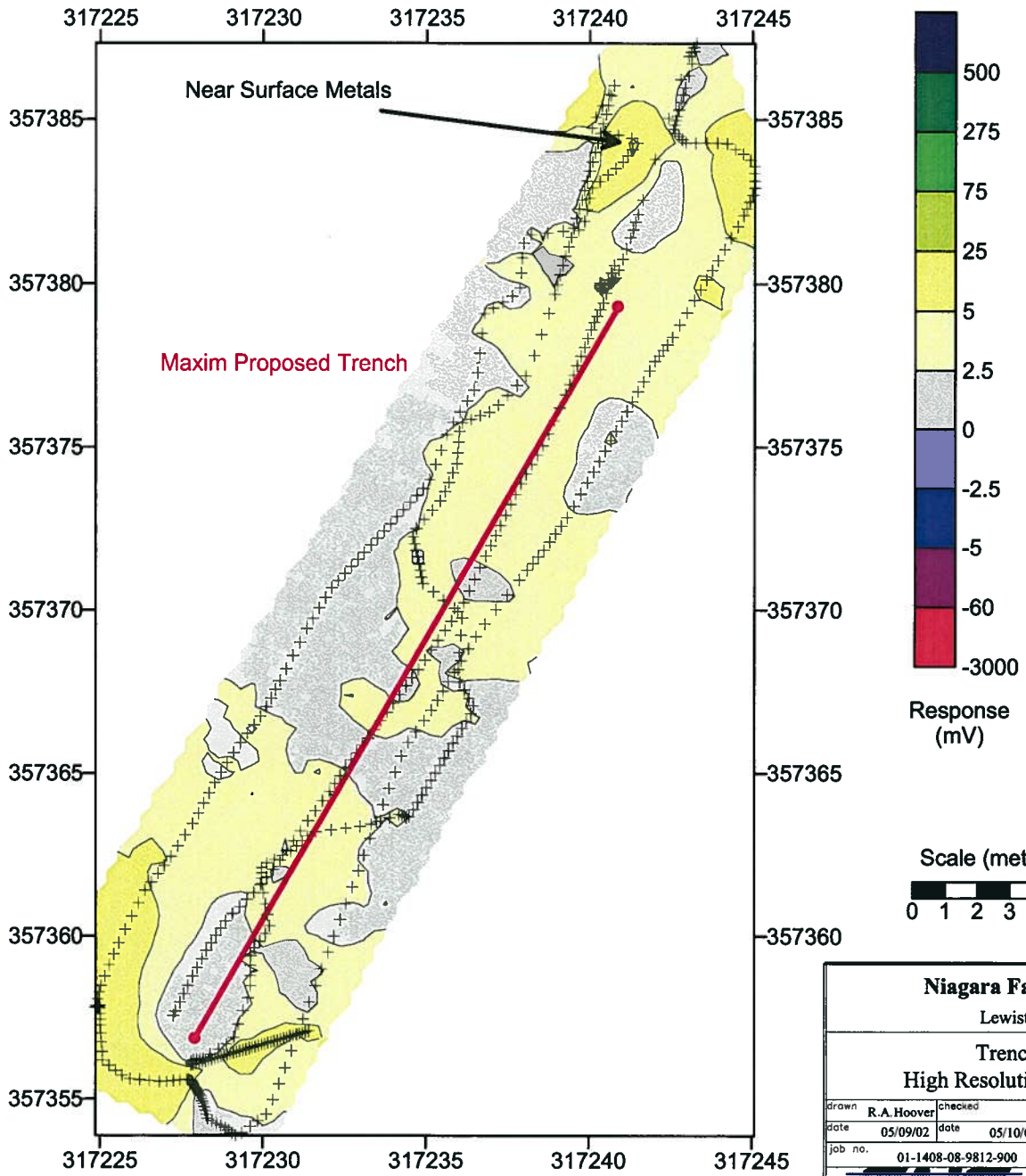

Legend

X Measurement Location

Coordinates are in NAD 83
New York West, (meters)

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Niagara Falls Storage Site

Lewiston, New York

Trench 808 Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no. 16
date 05/09/02	date 05/10/02	date	
job no. 01-1408-08-9812-900		file no. T808.SRF	

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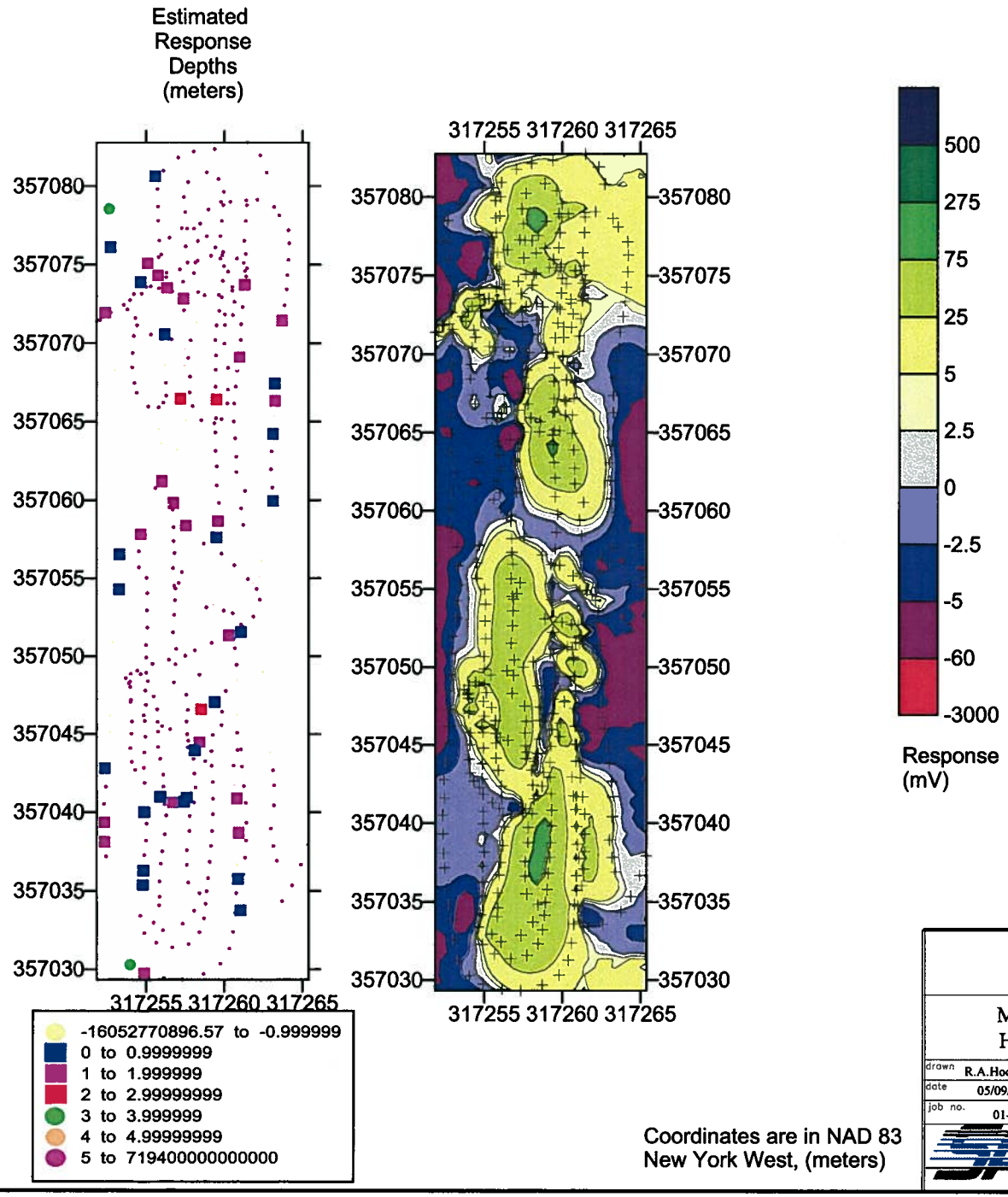

Scale (meters)

0 2 4 6 8 10

Coordinates are in NAD 83
New York West, (meters)

Niagara Falls Storage Site

Lewiston, New York

Magnetic Anomalies P & Q Area
High Resolution Metal Detector

drawn R.A.Hoover	checked	approved	figure no.
date 05/09/02	date 05/10/02	date	17
job no. 01-1408-08-9812-900		file no. MagPQ.SRF	

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Appendix C
Representative Photos of Trenching Activities

TG01-05 Metal Five-gallon trash container excavated at Trench Location TG01

TG01-06 Plastic bucket with lab debris test from Trench Location TG01

TG02-05 Metal Five-gallon trash container excavated at Trench Location TG02

TG02-06 Contents of metal five-gallon trash container excavated at Trench Location

TG02. Note tubing, metal canister, and latex gloves

TG02-14 Red roofed farmhouse located west of trench location TG02

TG03-03 Glass bottle and rubber tubing excavated from Trench TG03

Appendix D
Field Notes During Collection of Soil Samples from Trenches

Maxim Trenching Documentation Form, Page 1 of 6

Site: NFSS **Date:** 9/11/02

Trench ID: 601 **SSO:** G.C. Dawdy

Trench Entered (y or n): **Trench Entered By:** NA

Trench Depth: 6-12 **Competent Person:** Mark Sievers

Soil Type: (A)

Samples Collected:

Sample Collection Method: Composite sample from excavator bucket collected with ss bowl and spoon

Atmospheric Monitoring:

Location	%O_2	%LEL	%Toxics	PID	Remarks
0-65 surface	21.0	0	0	0.0	
65-50 (3')	21.0	0	0	0.0	
50-35 (5')	21.0	0	0	0.0	
35-20	21.0	0	0	0.0	
20-15	21.0	0	0	0.0	
15-0	21.0	0	0	0.0	

Nitroaromatics Testing: NA

Location Dist./Depth	Present (y/n)	Concentration > 5% (y/n)	Concentration > 10% (y/n)

Trench TG01

Location	Depth	PID	Trench/Bucket Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
0-65	surface	0	20K	none	none	NA	NA
65-50	1.0	0	13/7	none	none	no	Brn silty clay Dry some gravel
65-50	2.0	0	14/8	none	none	no	" "
65-50	3.0	0	15/7	none	none	no	Drk brn silty Dry "
65-50	4.0	0	17/8	none	none	no	Brn-gray silty clay dry some gravel, cobbles
65-50	5.0	NA	17/9	none	none	no	gray-Brn silty clay " dry " "
65-50	6.0	NA	18/8	none	none	no	gray silty clay
50-35	1.0	NA	14/8	none	none	no	Brn silty clay dry " some gravel
50-35	2.0	0	16/9	none	none	no	"
50-35	3.0	0	17/9	none	none	no	
50-35	4.0	0	17/8	none	none	no	Brn-gray silty clay dry some gravel, cobbles
50-35	5.0	0	17/9	none	none	no	Gray-brn silty clay dry "
50-35	6.0	0	18/9	none	none	yes (1)	Gray silty clay TBG01-3000-06.0-050 (9000+3007)
35-20	1.0	0	14/7	none	none	no	Brn silty clay dry some bricks
35-20	2.0	0	14/9	none	none	yes (2)	" " TBG01-3002-02.0-025
35-20	3.0	0	14/9	none	none	no	Brn silty clay dry some gravel Test tube at 0+25 5gal Trashcan at 0+21
9/12/02 35-20	3.0	0	14/9	none	none	(4) yes (3)	" "
35-20	4.0	0	17/8	none	none	no	Brn-gray silty clay some cobbles
35-20	5.0	0	17/9	none	none	no	drk brn-gray silty clay "
35-20	6.0	0	17/8	none	none	no	brn-gray/white silty clay "
35-20	7.0	0	16/8	none	none	no	brn-gray/white " "
20-15	1.0	0	14/9	none	none	no	Brn silty clay dry some gravel
20-15	2.0	0	14/9	none	none	no	brn silty clay dry "
20-15	3.0	0	14/9	none	none	no	brn silty clay dry "
20-15	4.0	0	17/5	none	none	no	gray-brn silty clay with cobbles

(5) TBG01-3003-05.0-016 9/12/02 1110

(6) TBG01-3004-02.0-000 9/13/02
TBG01-3006-02.0-000 1000

(3) TBG01-3001-03.0-021 9/12/02 0945
TBG01-3005-03.0-021 9/12/02 0945
TBG01-9005-03.0-021 9/12/02 0945
} Soil just below Trashcan

(4) TBG01-3070-03.0-021 9/12/02 1025
TBG01-3075-03.0-021 9/12/02 1025
} soil inside trashcan

Trench TG01

Location	Depth	PID	Trench/bucket Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
20-15	5.0	0	17/8	no	no	yes (5)	gray-brn silty clay dry w/cobbles
20-15	6.0	0	18/8	no	no		Gray silty clay sl moist w/ cobbles
20-15	7.0	0	18/8	no	no		"
20-15	8.0	0	19/10	no	no		"
20-15	9.0	0	19/10	no	no		"
20-15	10.0	0	19/10	no	no		"
20-15	11.0	0	18/9	no	no		"
20-15	12.0	0	20/9	no	no		"
15-0	1.0	0	14/9	no	no	yes	Brn CL dry Lab can lid at 0+8 small pelvis bone at 0+6'
15-0	2.0	0	15/9	no	no		Brn CL dry
15-0	3.0	0	16/10	no	no	yes	Brn-Gray CL dry w/some white powdery material (500ml bottle w/ Pink solid)
15-0	4.0	0	16/10	no	no		Gray-brn CL dry w/some cobbles
15-0	5.0	0	17/10	no	no		Gray CL dry w/some cobbles
15-0	6.0	0	17/10	no	no		"
15-0	7.0	0	17/10	no	no		Gray CL sl moist w/some cobbles
15-0	8.0	0	17/10	no	no		"
9/13/02 15-0	9.0	0	18/9	no	no		"
15-0	10.0	0	20/10	no	no		"
15-0	11.0	0	19/10	no	no		"
15-0	12.0	0	18/9	no	no		"
0-5	1.0	0	16/8	no	no		Brn CL dry some gravel
0-5	2.0	0	13/8	no	no	yes (6)	"
0-5	3.0	0	14/9	no	no		"
0-5	4.0	0	15/8	no	no		"
0-5	5.0	0	16/9	no	no		"
0-5	6.0	0	18/9	no	no		Gray-brn CL sl. moist some cobbles
0-5	7.0	0	19/7	no	no		Gray CL sl moist

Additional Notes or Drawings

Trench: TG01

TBG01-3000-06.0-050 9/11/02 (1510)
TBG01-9050-06.0-050 9/11/02 (1510)
TBG01-3001-03.0-021 9/12/02 (945)
TBG01-3002-02.0-025 9/11/02 (1600)
TBG01-3003-05.0-016 9/12/02 (1110)
TBG01-3004-02.0-000 9/13/02 (1000)
TBG01-3005-03.0-021 9/12/02 (945)
TBG01-9005-03.0-021 9/12/02 (945)
TBG01-3006-02.0-000 9/13/02 (1000)
TBG01-3007-06.0-050 9/11/02 (1510)

5gal Trash can Gamma 20K

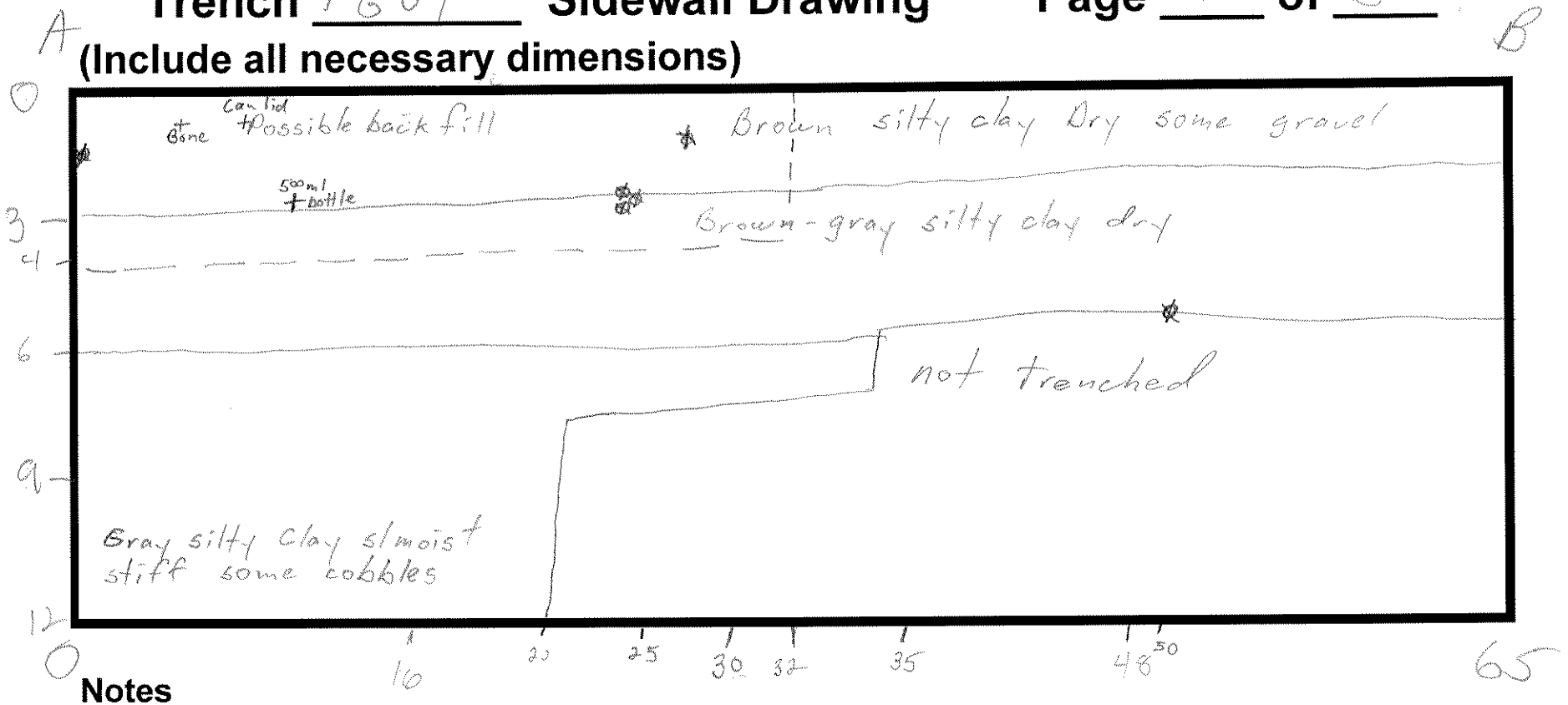
Bottle neck, glass slide 15'-2.5'

Possible backfill apparent at A+30 from 0'-4' back toward Aend

Scattered pieces of transite at surface to -2'

Trench TG01 **Sidewall Drawing** **Page** 5 **of** 6

(Include all necessary dimensions)



Notes

Trench T601 Plan View Page 6 of 6

(Include all necessary dimensions)

A spoils B

1.5

Bone 0-1

Lab can lid 0-3

0 6 8 6.5

Notes

Maxim Trenching Documentation Form, Page 1 of 5

Site: NFSS

Date: 9/13/02

Trench ID: T604

SSO: G.C. Dawdy

Trench Entered (y or n): n

Trench Entered By: N/A

Trench Depth: 6'

Competent Person: T. Livingston

Soil Type: A

Samples Collected:

Sample Collection Method: Composite sample from excavator bucket collected w/ stainless steel bowls + spoons

Atmospheric Monitoring:

Location	%O_2	%LEL	%Toxics	PID	Remarks
0-15	21	0	0	0	
15-30 (12')	21	0	0	0	
30'-45	21	0	0	0	

Nitroaromatics Testing: N/A

Location Dist./Depth	Present (y/n)	Concentration > 5% (y/n)	Concentration > 10% (y/n)

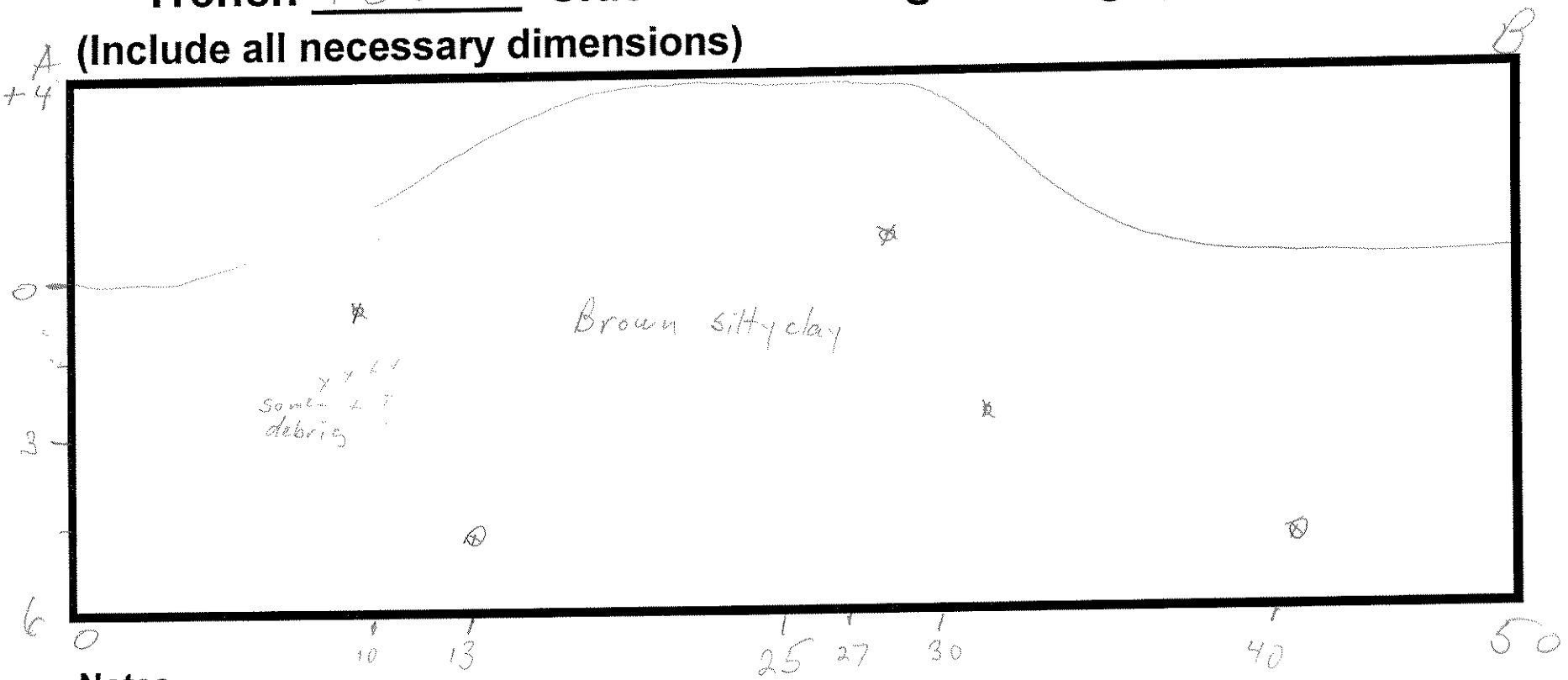
Trench TG04

Page 2 of 5

Location	Depth	PID	Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
0+13	1'	0	15/8	none	none	yes (1)	TBG04-3025-01.0-010 09-13-02 1410 Br silty CL rooty dry
0+13	2'	0	16/8	none	none	no	Br silty CL dry
0+13	3'	0	17/8	none	none	no	Br silty CL (glass + plastic found)
0+13	4'	0	17/8	none	none	no	Br silty CL
0+13	5'	0	17/8	none	none	yes (2)	Br silty CL TBG04-3026-05.0-013 1430
13+27	1'	0	17/8	none	none	no	Br silty CL dry
13+27	2'	0	17/8	none	none	no	Br silty CL dry
13+27	3'	0	16/8	none	none	no	Br CL dry
13+27	4'	0	17/8	none	none	yes (3) (4)	Br CL dry TBG04-3027-04.0-027 1450 TBG04-3030-04.0-027 1450
27+~~[illegible]~~	1'	0	16/8	none	none	no	Br silty CL dry
27+~~[illegible]~~	2'	0	16/8	none	none	no	Br wh CL
27+~~[illegible]~~	3'	0	16/8	none	none	no	Br wh CL
27+~~[illegible]~~	4'	0	16/8	none	none	no	Br wh CL
27+~~[illegible]~~	5'	0	17/8	none	none	no	Br wh CL TG04-3031-06.0-03
27+~~[illegible]~~	6'	0	17/8	none	none	yes (5)	Br silty CL dry TG04-3029-06.0-04 TG04-3028-06.0-05
35+50	1'	0	16/8	none	none	no	Br silty CL dry
35+50	2'	0	16/8	none	none	no	Br silty CL dry
35+50	3'	0	16/8	none	none	no	Br CL dry
35+50	4'	0	16/8	none	none	yes (6)	Br CL dry TBG04-3029-04.0-040 - RED TBG04-3032-04.0-040 - chem 1530

Trench T604 **Sidewall Drawing** **Page** 3 **of** 5

(Include all necessary dimensions)



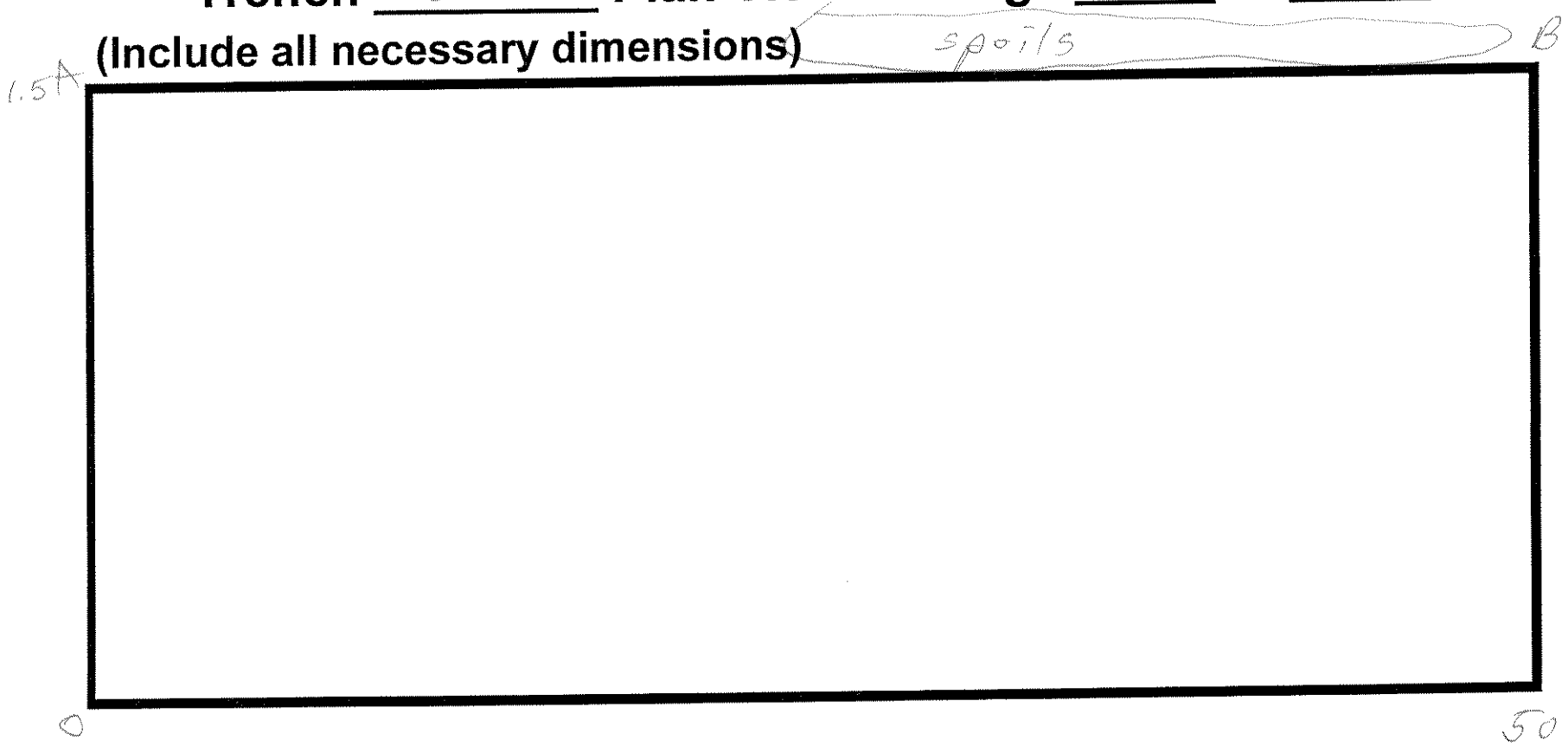
Notes

Additional Notes or Drawings

Trench: T604

Trench TG04 **Plan View** **Page** 5 **of** 5

(Include all necessary dimensions)



Notes

Maxim Trenching Documentation Form, Page 1 of ___

Site: NFSS

Date: 9/14/06

Trench ID: TG03

SSO: G.C. Dawdy

Trench Entered (y or n): (n)

Trench Entered By: NA

Trench Depth: 4

Competent Person: T. Livingston

Soil Type: (A)

Samples Collected:

Sample Collection Method: Composite sample collected from excavator bucket with stainless steel bowls and spoons

Atmospheric Monitoring:

Location	%O_2	%LEL	%Toxics	PID	Remarks
0-5 surface	21	0	0	0	

Nitroaromatics Testing: NA

Location Dist./Depth	Present (y/n)	Concentration > 5% (y/n)	Concentration > 10% (y/n)

Trench TG03

Location	Depth	PID	Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks MS/MSD 0929
13-11	1'	0	15/9	none	none	yes ①	Br silty CL dry TBG03-3018-01.0-011
0+13	1'	0	15/9	none	none	no	Br silty CL dry
0+10	2'	0	15/9	none	none	no	Br silty CL dry
0+10	3'	0	16/9	none	none	no	Br silty CL moist
0+10	4'	0	16/5	none	none	no	Br CL moist
10+15	1'	0	16/5	none	none	no	Br silty CL dry
10+15	2'	0	15/9	none	none	no	Br silty CL dry
10+15	3'	0	17/9	none	none	no	Br CL moist
10+15	4'	0	17/9	none	none	yes ②	Br CL moist TBG03-3019-04.0-015 1000

Additional Notes or Drawings

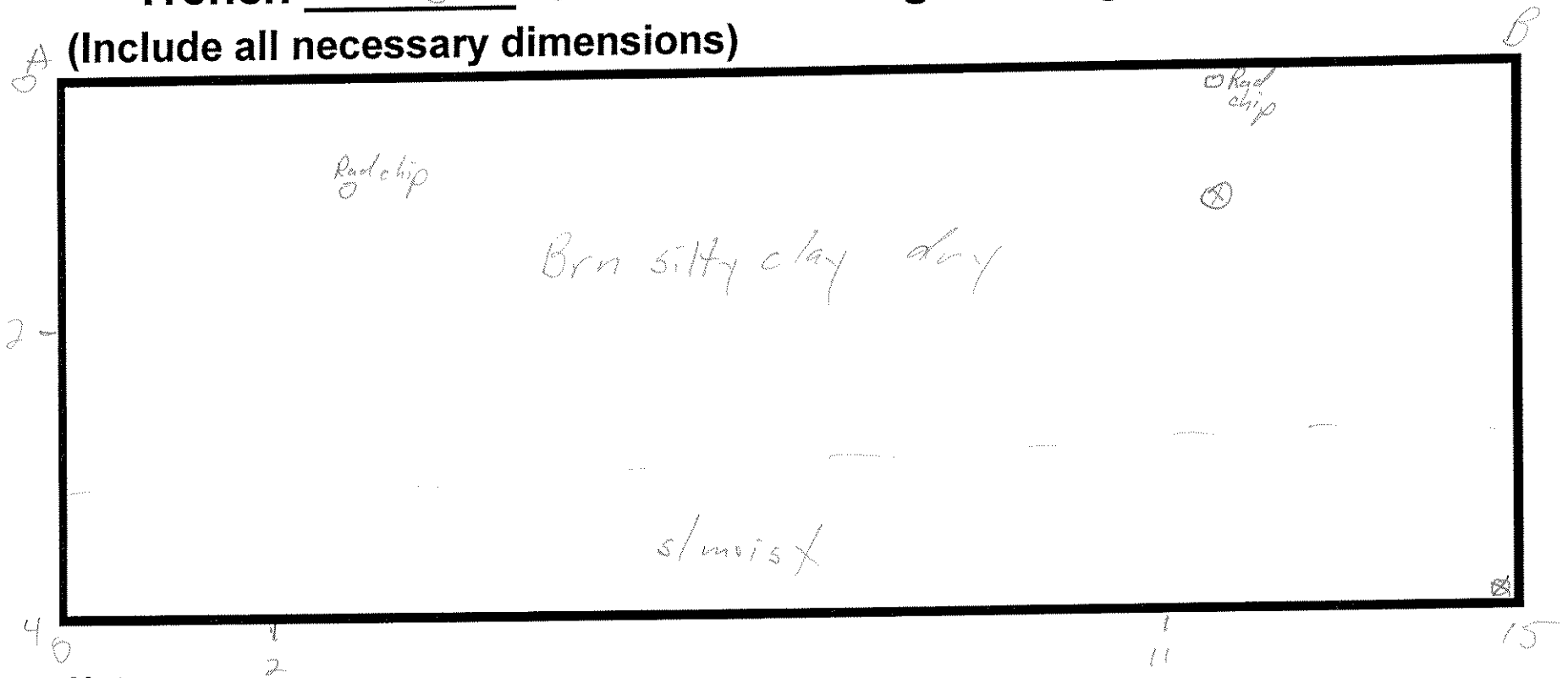
Trench: TC03

0+1 Rad chip found on surface

0+2 Rad chip found depth 1' Sample TB603-3071-01.0-01 9/16/02 0820

Trench TG03 **Sidewall Drawing** **Page** 4 **of** 5

(Include all necessary dimensions)



Notes

Trench TG03 **Plan View** **Page** 5 **of** 5

(Include all necessary dimensions) spoils

0A B

1.5 0 15

Notes

Maxim Trenching Documentation Form, Page 1 of 5

Site: NFSS

Date: 9/14/02

Trench ID: TG05

SSO: G.C. Dawdy

Trench Entered (y or n):

Trench Entered By: NA

Trench Depth: 7-10

Competent Person: T. Livingston/M. Sievers

Soil Type: (A)

Samples Collected:

Sample Collection Method: Composite sample collected from excavator bucket with stainless steel bowls and spoons

Atmospheric Monitoring:

Location	%O_2	%LEL	%Toxics	PID	Remarks
0+15 shaft	21	0	0	0	
0+15 (99)	21	0	0	0	

Nitroaromatics Testing: NA

Location Dist./Depth	Present (y/n)	Concentration > 5% (y/n)	Concentration > 10% (y/n)

Trench TG05

Page 8 of ___

Location	Depth	PID	Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
0+15	1'	0	15/9	none	none	no	Br silty CL (dry) (debris, cone, pipe)
0+15	2'	0	15/9	none	none	no	Br silty CL (dry)
0+15	3'	0	15/9	none	none	no	Br silty CL (dry)
0+15	4'	0	15/9	none	none	no	Br silty CL (dry)
0+15	5'	0	15/9	none	none	Yes (1)	Br silty CL - TBG05-3040-05.0-012/1200
0+15	6'	0	15/9	none	none	no	Br CL moist
0+15	7'	0	15/9	none	none	no	Br CL moist
0+15	8'	0	15/9	none	none	no	Br CL moist
0+15	9'	0	15/9	none	none	no	Br CL moist
0+15	10'	0	15/9	none	none	yes (2)	Brn-Gray CL sl moist
15-35	1	0	15/10	none	none	no	Brn CL w/bricks transite dry
15-35	2	0	15/10	none	none	no	" " "
15-35	3	0	18/10	none	none	no	Brn-gray CL w/some white + cobbles
15-35	4	0	17/9	none	none	yes (3)	" " " some cobbles
15-35	5	0	17/9	none	none	no	Gray-brn CL sl moist "
15-35	6	0	17/9	none	none	no	" " " "
15-35	7	0	18/9	none	none	no	" " "
35-50	1	0	13/7	none	none	no	Brn CL dry some debris (Bricks, Ary
35-50	2	0	15/8	none	none	no	" "
35-50	3	0	17/8	none	none	yes (4)	Gray-brn CL some cobbles sl moist
35-50	4	0	17/9	none	none	no	" " " "
35-50	5	0	17/9	none	none	no	Gray CL w/some cobbles "
35-50	6	0	18/9	none	none	no	" " " "
35-50	7	0	18/9	none	none	yes (5)	" " "

(1) TBG05-3040-05.0-012 (1200)

(2) TBG05-3041-10.0-014 (1500)
TBG05-3045-10.0-014

(3) TBG05-3042-04.0-035 (1515)
TBG05-3046-04.0-035

(4) TBG05-3043-03.0-045 (1530)

(5) TBG05-3044-07.0-050 (1550)
TBG05-3047-07.0-050
TBG05-9047-07.0-050

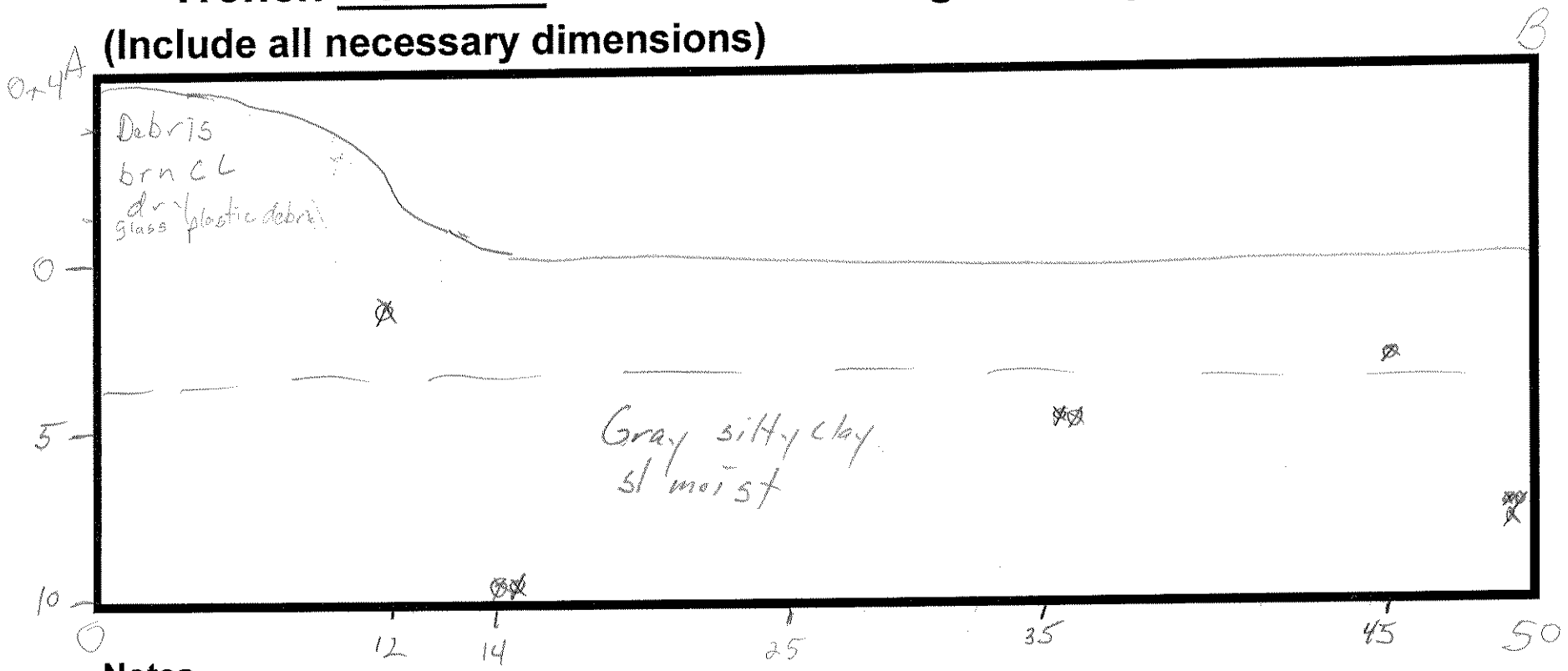
Additional Notes or Drawings **Page 3 of ___**

Trench: T605

crushed barrell 020-006

Trench TG05 **Sidewall Drawing** **Page** 4 **of** 5

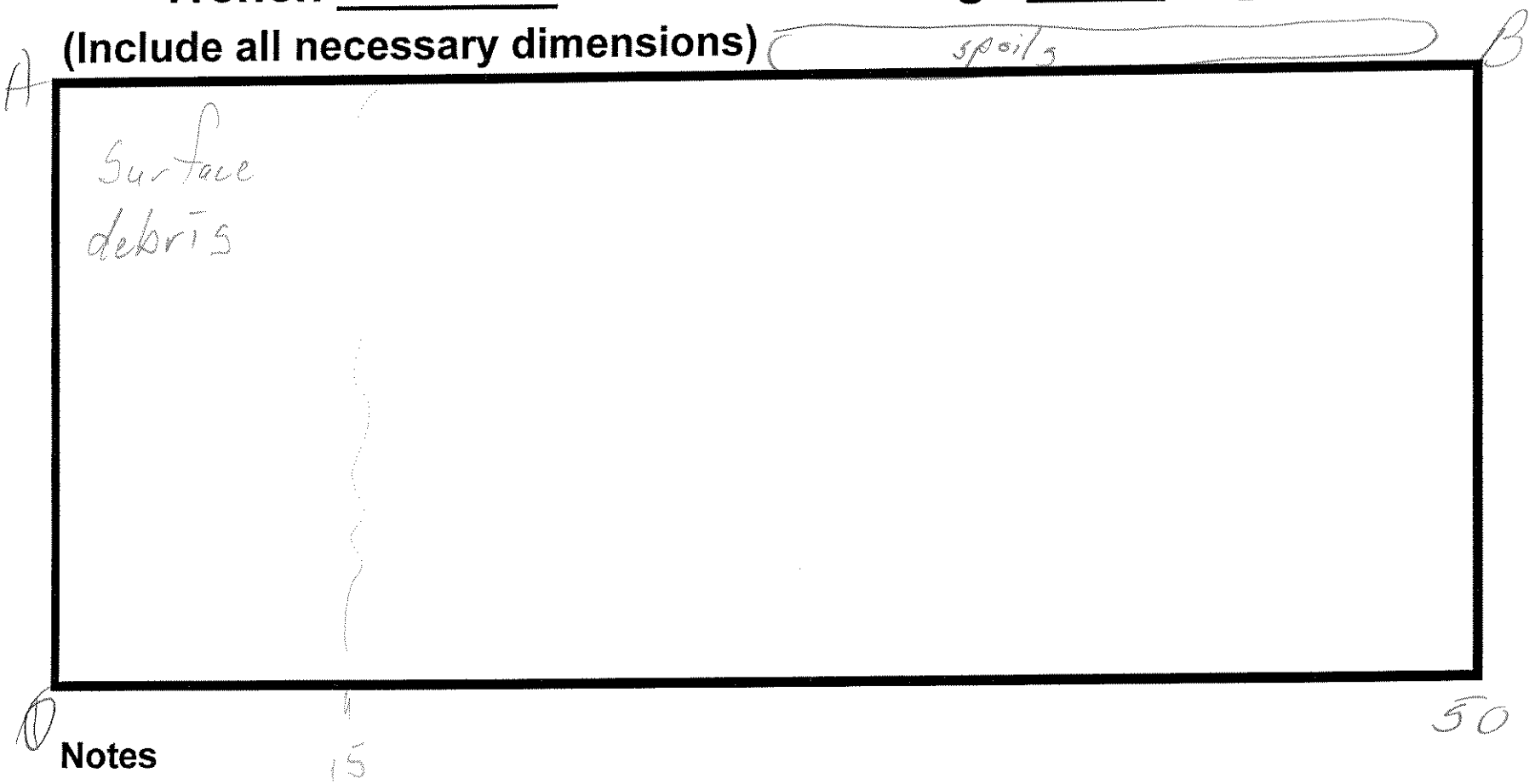
(Include all necessary dimensions)



Notes

Trench TG05 **Plan View** **Page** 5 **of** 5

(Include all necessary dimensions)



Notes

Maxim Trenching Documentation Form, Page 1 of ___

Site: NFSS **Date:** 9/16/02

Trench ID: 602 **SSO:** G.C. Dawdy

Trench Entered (y or n): n **Trench Entered By:** NA

Trench Depth: 4.5 **Competent Person:** M. Sievers

Soil Type: A

Samples Collected: TB602-3015-4.5-001 (945) LD602-3017 TG602-3013-001
TB602-3016-4.5-001 (945 LD602-9017

Sample Collection Method: Composite sample collected from excavator bucket with stainless steel bowls and spoons

Atmospheric Monitoring:

Location	%O_2	%LEL	%Toxics	PID	Remarks
Surface	21	0	0	0.0	
1	21	0	0	0.0	
2	21	0	0	0.0	
3	21	0	0	0.0	

Nitroaromatics Testing: NA

Location Dist./Depth	Present (y/n)	Concentration > 5% (y/n)	Concentration > 10% (y/n)

Trench G02

Page ___ of ___

Location	Depth	PID	Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
0,0 = Buried Can	0	0	10	none	none	no	
							Found verbiage on at 00; 3' BGS
							Trench 12 x 6 Long Axis N-S
							Took chem + Rad soil sample
							at 00 4' deep
							some additional widely scattered 2-4' deep
							lab debris 1-40 ml vial 1 pr tongs
							another piece of a lab can with
							possible ACM in it
							additional RAD sample collected
							from bag of hot soil that
							was originally inside lab can
							when found in May (140k)
							Dug to 4.5' no elevated Rad readings
							no more debris; back filled
							hole drumed Lab can, ACM and
							plastic

Maxim Trenching Documentation Form, Page 1 of ___

Site: NFSS

Date: 9/15/02

Trench ID: TG06

SSO: G.C. Dawdy

Trench Entered (y or n): n

Trench Entered By: NA

Trench Depth: 7

Competent Person: M. Siever / T. Livingston

Soil Type: A

Samples Collected:

Sample Collection Method: Composite sample collected from excavator bucket with stainless steel bowls and spoons

Atmospheric Monitoring:

Location	%O_2	%LEL	%Toxics	PID	Remarks
0-18	21	0	0	0.0	
18-36	21	0	0	0.0	
50-64	21	0	0	0.0	
92-100	21	0	0	0.0	

Nitroaromatics Testing: NA

		Concentration	
Location Dist./Depth	Present (y/n)	> 5% (y/n)	> 10% (y/n)

Trench TG06

Location	Depth	PID	Trench/bucket Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
0-100	Surface	0.00	10	no	no	n.a.	
0-18	1	0	13/10	no	no	yes (1)	Brn CL w/gravel dry
0-18	2	0	15/10	no	no	no	Lt brn CL w/gravel dry
0-18	3	0	16/10	no	no	no	Gray CL w/cobbles sl moist
0-18	4	0	17/10	no	no	no	"
0-18	5	0	17/10	no	no	no	"
0-18	6	0	18/10	no	no	no	"
0-18	7	0	18/10	no	no	no	"
18-36	1	0	12/10	metal/boulders	no	no	Brn CL w/gravel dry
18-36	2	0	14/10	no	no	yes (2)	Lt Brn CL w/gravel dry
18-36	3	0	16/10	no	no	no	Gray CL w/cobbles dry
18-36	4	0	17/10	no	no	no	"
18-36	5	0	17/10	no	no	no	" sl moist
18-36	6	0	17/10	no	no	no	"
18-36	7	0	17/10	no	no	no	"
36-50	1	0	12/10	no	no	no	Brn CL w/gravel dry
36-50	2	0	15/10	no	no	yes (3)	Lt brn CL w/gravel dry
36-50	3	0	16/10	no	no	no	Gray CL w/cobbles dry
36-50	4	0	17/10	no	no	no	"
36-50	5	0	17/10	no	no	no	"
36-50	6	0	18/10	no	no	no	" sl moist
36-50	7	0	18/10	no	no	no	"
50-64	1	0	13/10	no	no	no	Brn CL w/gravel dry
50-64	2	0	13/10	no	no	no	Lt brn CL w/gravel "
50-64	3	0	16/10	no	no	no	Gray CL w/cobbles dry

(1) TS606-3055-015 (825)
TS606-3060-015 (825)

(2) TB606-3056-020-035 (900)

(3) TB606-3057-020-045 (930)
TB606-3061-020-045 (930)

Trench T606

Location	Depth	PID	Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
50-64	4	0	18/10	no	no	no	Gray CL w/cobbles dry
50-64	5	0	18/10	no	no	no	" sl moist
50-64	6	0	18/10	no	no	no	"
50-64	7	0	18/10	no	no	no	"
64-72	1	0	11/10	no	no	yes (4)	Brn CL w/gravel dry
64-72	2	0	12/10	no	no	no	"
64-72	3	0	15/10	no	no	no	Gray CL w/cobbles dry
64-72	4	0	16/10	no	no	no	"
64-72	5	0	16/10	no	no	no	"
64-72	6	0	18/10	no	no	no	" sl moist
64-72	7	0	18/10	no	no	no	"
72-80	1	0	14/10	no	no	yes (5)	Brn CL w/gravel dry
72-80	2	0	15/10	no	no	no	"
72-80	3	0	16/10	no	no	no	Gray CL w/cobbles dry
72-80	4	0	17/10	no	no	no	"
72-80	5	0	17/10	no	no	no	"
72-80	6	0	17/10	no	no	no	" sl moist
72-80	7	0	18/10	no	no	no	"
80-92	1	0	15/8	no	no	no	Brn CL w/gravel dry
80-92	2	0	15/8	no	no	no	Brn-gray CL dry
80-92	3	0	17/8	no	no	no	Gray CL w/cobbles dry
80-92	4	0	18/9	no	no	no	"
80-92	5	0	18/9	no	no	no	"
80-92	6	0	18/9	no	no	no	" sl moist
80-92	7	0	17/9	no	no	no	"

(4) TB606-3058-01.0-070 (1100)
TB606-9058-01.0-070 (1100)

(5) TS606-3059-085 (1345)
TS606-3062-085 (1345)

Trench T606

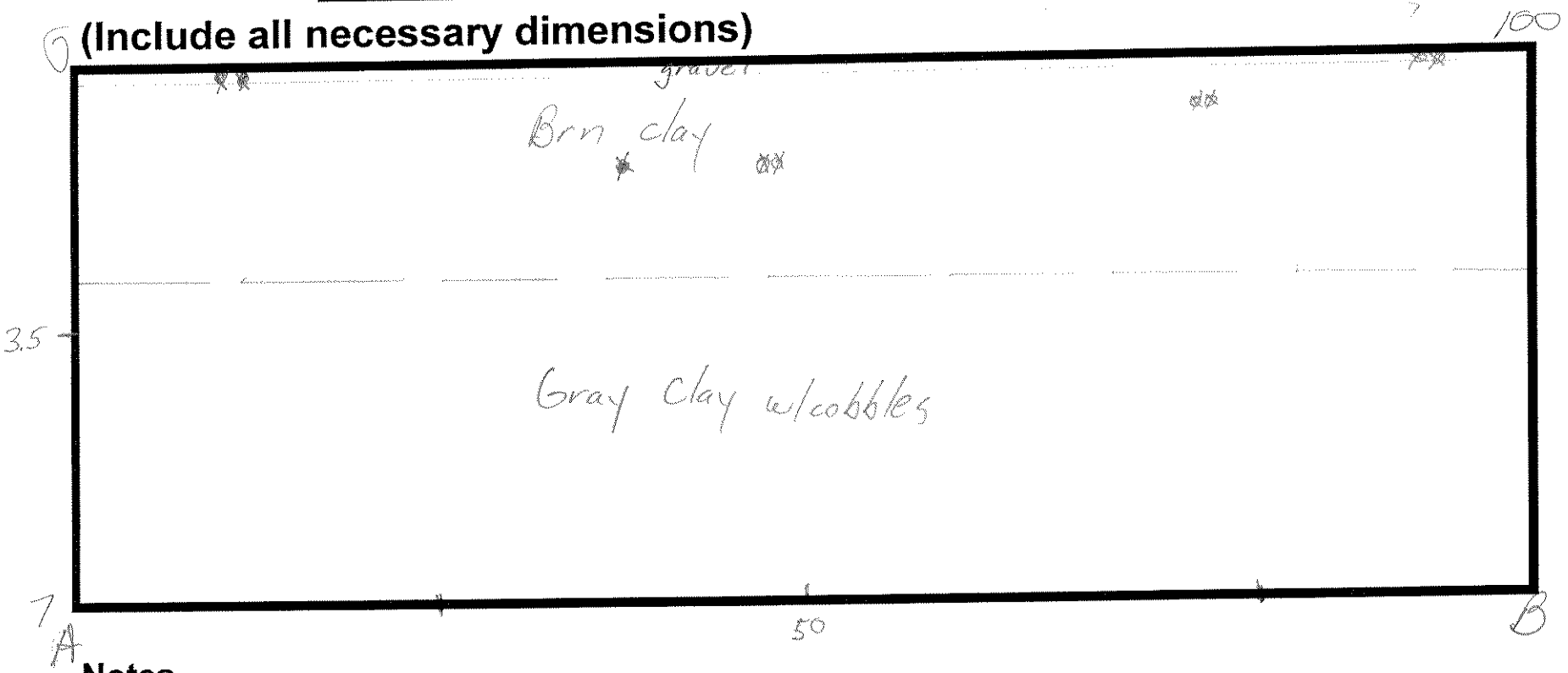
Location	Depth	PID	Gamma Count	Magnetometer Anomaly	Visual Evidence of Explosive Compounds	Sample	Remarks
92-100	1	0	14/8	no	no	no	Brn CL dry
92-100	2	0	14/9	no	no	no	"
92-100	3	0	15/9	no	no	no	Gray CL dry
92-100	4	0	15/8	no	no	no	"
92-100	5	0	17/9	no	no	no	"
92-100	6	0	17/9	no	no	no	"
92-100	7	0	17/9	no	no	no	"

Additional Notes or Drawings

Trench: TG06

Trench TG06 **Sidewall Drawing** **Page** 6 **of** 7

(Include all necessary dimensions)



Notes

Trench T606 **Plan View** **Page** 7 **of** 7

(Include all necessary dimensions)

0 spoils 100

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Notes

Appendix E
Abandoned Drum Residue Sample Results

Vicinity Property G
Abandoned Drum Residue Sample Results - Radiological Parameters

Sample ID	Parameter	Lab Result	Uncertainty	Units	Lab Qualifier
RS-DRUM9-3384					
	Actinium-227	0.0222	0.105	pCi/g	U
	Alpha	1.72	0.942	pCi/g	
	Americium-241	0.0105	0.0112	pCi/g	U
	Beta	1.09	0.717	pCi/g	U
	Cesium-137	0.0324	0.0174	pCi/g	
	Cobalt-60	-0.00423	0.011	pCi/g	U
	Plutonium-238	0	2	pCi/g	U
	Plutonium-239/240	0.017	0.0691	pCi/g	U
	Protactinium-231	0.0369	0.424	pCi/g	U
	Radium-226	0.109	0.0439	pCi/g	
	Radium-228	0.0389	0.0783	pCi/g	U
	Strontium-90	0.00959	0.333	pCi/g	U
	Thorium-228-Alpha	0.3	0.4	pCi/g	U
	Thorium-228-Gamma	0.0211	0.0277	pCi/g	U
	Thorium-230	0.243	0.297	pCi/g	U
	Thorium-232	0.107	0.179	pCi/g	U
	Total Activity	-1.85	12	pCi/g	U
	Total Uranium	0.171	0.00631	ug/g	
	Uranium-234	-0.127	0.234	pCi/g	U
	Uranium-235-Gamma	0	0.0545	pCi/g	UUI
	Uranium-235-Alpha	0.0131	0.127	pCi/g	U
	Uranium-238-Alpha	0.153	0.165	pCi/g	U
	Uranium-238-Gamma	0.0282	0.218	pCi/g	U

Vicinity Property G
Abandoned Drum Residue Sample Results - Radiological Parameters

Sample ID	Parameter	Lab Result	Uncertainty	Units	Lab Qualifier
RS-DRUM10-3385					
	Actinium-227	-0.0162	0.139	pCi/g	U
	Alpha	0.123	0.922	pCi/g	U
	Americium-241	0.0103	0.0177	pCi/g	U
	Beta	0.0383	0.811	pCi/g	U
	Cesium-137	0.00599	0.0168	pCi/g	U
	Cobalt-60	0.0106	0.0184	pCi/g	U
	Plutonium-238	-0.0076	0.0152	pCi/g	U
	Plutonium-239/240	0	2	pCi/g	U
	Protactinium-231	-0.0148	0.567	pCi/g	U
	Radium-226	0.145	0.0658	pCi/g	
	Radium-228	0.0829	0.0687	pCi/g	U
	Strontium-90	-0.0636	0.387	pCi/g	U
	Thorium-228-Alpha	-1.48	2	pCi/g	U
	Thorium-228-Gamma	0	0.0256	pCi/g	UUI
	Thorium-230	1.11	1.41	pCi/g	U
	Thorium-232	0.16	0.652	pCi/g	U
	Total Activity	-3.92	9.68	pCi/g	U
	Total Uranium	0.383	0.014	ug/g	
	Uranium-234	0.0286	0.0573	pCi/g	U
	Uranium-235-Gamma	0.0678	0.0743	pCi/g	U
	Uranium-235-Alpha	0.0505	0.0826	pCi/g	U
	Uranium-238-Alpha	0.0504	0.0823	pCi/g	U
	Uranium-238-Gamma	0	0.615	pCi/g	UUI

Vicinity Property G
Abandoned Drum Residue Sample Results - Radiological Parameters

Sample ID	Parameter	Lab Result	Uncertainty	Units	Lab Qualifier
RS-DRUM11-3386					
	Actinium-227	0.0289	0.132	pCi/g	U
	Alpha	0.504	0.948	pCi/g	U
	Americium-241	0.00387	0.0739	pCi/g	U
	Beta	0.561	0.823	pCi/g	U
	Cesium-137	0.00795	0.0112	pCi/g	U
	Cobalt-60	0.00787	0.0121	pCi/g	U
	Plutonium-238	-0.00718	0.0144	pCi/g	U
	Plutonium-239/240	-0.00718	0.0144	pCi/g	U
	Protactinium-231	0.268	0.523	pCi/g	U
	Radium-226	0.019	0.0503	pCi/g	U
	Radium-228	0.0117	0.0784	pCi/g	U
	Strontium-90	0.115	0.305	pCi/g	U
	Thorium-228-Alpha	0.416	0.724	pCi/g	U
	Thorium-228-Gamma	0.00273	0.0382	pCi/g	U
	Thorium-230	0.573	0.512	pCi/g	U
	Thorium-232	0.309	0.426	pCi/g	U
	Total Activity	0.577	12.5	pCi/g	U
	Total Uranium	0.0525	0.00238	ug/g	U
	Uranium-234	0.0671	0.118	pCi/g	U
	Uranium-235-Gamma	0.0299	0.0996	pCi/g	U
	Uranium-235-Alpha	0.058	0.0949	pCi/g	U
	Uranium-238-Alpha	0.132	0.132	pCi/g	
	Uranium-238-Gamma	0.386	0.835	pCi/g	U

Vicinity Property G
Abandoned Drum Residue Sample Results - Radiological Parameters

Sample ID	Parameter	Lab Result	Uncertainty	Units	Lab Qualifier
RS-DRUM12-3387					
	Actinium-227	0.0672	0.111	pCi/g	U
	Alpha	0.435	1.07	pCi/g	U
	Americium-241	0.00456	0.0149	pCi/g	U
	Beta	1.76	0.931	pCi/g	
	Cesium-137	0.00284	0.0134	pCi/g	U
	Cobalt-60	0.00813	0.0167	pCi/g	U
	Plutonium-238	-0.0347	0.0285	pCi/g	U
	Plutonium-239/240	-0.0289	0.026	pCi/g	U
	Protactinium-231	-0.487	0.458	pCi/g	U
	Radium-226	0.0528	0.0633	pCi/g	
	Radium-228	0.0404	0.0573	pCi/g	U
	Strontium-90	0.129	0.414	pCi/g	U
	Thorium-228-Alpha	0.449	0.468	pCi/g	U
	Thorium-228-Gamma	0.00298	0.0344	pCi/g	U
	Thorium-230	0.251	0.268	pCi/g	U
	Thorium-232	-0.0448	0.0544	pCi/g	U
	Total Activity	3.11	14.4	pCi/g	U
	Total Uranium	1.24	0.0255	UG/G	
	Uranium-234	0.702	0.318	pCi/g	
	Uranium-235-Gamma	0	0.0701	pCi/g	UUI
	Uranium-235-Alpha	0.0958	0.111	pCi/g	
	Uranium-238-Alpha	0.622	0.295	pCi/g	
	Uranium-238-Gamma	0.436	0.371	pCi/g	

Appendix F
VPG Calculator

Purpose: This spreadsheet estimates radionuclide activity in Niagara Falls Storage Site Vicinity Property "G" (VPG) waste containers.
Method: Using VPG analytical data, mean concentrations (pCi/g) are multiplied by anticipated soil/media weight (g). Two datasets are incorporated, Lab Debris and Trench Data.
Operating Instructions: Select "VPG-Report", **enter** Container Number, **select** type of "Container Contents", **enter** Container Gross Weight (lbs.), **select** "Container Type", **print**.
Prior to use: Verify net weight of 55 gallon drums, soil bags and overpack drums, ensure "VPG Variables" container "Tare Weight" is correct.
Prior to use: Macros must function for spreadsheet to operate properly, **select** "enable macros" at startup, **set** Excel Security to "medium" (Tools/macro/security).

Notes:

Note: In "VPG Report", radionulcide activity is reported in units of "uCi/drum", add a column to convert to desired units.
The following worksheets are included for information only and do not affect results in real-time; "VPG Samples+Wastes", "Trench Data", "Lab Debris Data", "All Rad Data".
Use extreme caution if changing any parameters in the "VPG Variables" worksheet, all variables are inter-related.
"Soil and Lab Debris" consist of soil and laboratory debris from trenching vs "Soil/Debris" which describes soil and debris such as pieces of drums, metal scrap and/or wood.
Raw data- all non rad, potassium-40, gross alpha, gross beta, and total activity were eliminated prior to calculating summary statistics.
Animal carcass sample (ACG01-3008-01.0-006) analytical results are not included. The piece of identified animal carcass was sent to the lab and is not in a waste stream.
The lab waste bucket was placed into drum " VPG Lab Debris" with trench soil. Although the lab waste/soil ratio is on the order of 1 to 3, conservatively estimating 1 to 1.
Where multiple analysis was performed for an analyte, defaulting with alpha spectroscopy method (for accuracy).
Radionuclide concentrations below zero set to zero in summary statistics.
Questions?, contact Greg Dawdy at 314-426-0880.

VPG IDW Drum Activity Report

Container ID:

Container Contents: Spoil Pile tarps

Container gross weight (lbs.): 100

Container Type: Soil Bag

Radionuclide	Activity (uCi)
Ac-227	0.04
Ra-226	0.65
U-233/234	0.23
U-235/236	0.02
U-238	0.23
Th-228	0.01
Th-230	0.33
Pu-239/240	0.01
Pa-231	0.03
Sr-90	0.03

Calculated By: _____

Date: _____

DO NOT MODIFY VARIABLES UNLESS CERTAIN OF INTER-RELATIONSHIPS

VPG Soil Content/Media			
Item Description	Item No.	Rad Table #	Fraction
PPE	1	2	0.01
Spoil Pile tarps	2	2	0.4
Soil and Lab Debris	3	3	1.0
Plastic Sheeting	4	2	0.4
Decon Solids	5	2	0.75
Styrofoam	6	2	0.01
PPE, plastic tarps	7	2	0.22
Soil/Debris	8	2	0.8
		Content Selected #:	**2**

Container Type	Cntr. Number		Tare Weight
55 gallon drum	1	lbs.	55
Soil Bag	2	lbs.	15
Overpack	3	lbs.	47
		Container Selected #:	**2**

Soil and Lab Debris Volume	
Lab Debris Volume	50%
Soil Volume	50%

Derived Values		
Container gross weight:	100	
Container tare weight:	15	
Contents net weight:	85	
Soil/media fraction:	0.40	
Content soil (media) weight:	34	
Rad table selected:	2	
Radionuclides	**Conc. (pCi/g)**	**uCi**
Ac-227	2.38	0.04
Ra-226	42.06	0.65
U-233/234	14.86	0.23
U-235/236	1.15	0.02
U-238	14.59	0.23
Th-228	0.93	0.01
Th-230	21.12	0.33
Pu-239/240	0.46	0.01
Pa-231	2.09	0.03
Sr-90	1.68	0.03

Table 1

Lab Debris	Mean (pCi/g)	Fraction
Pu-239/240	0.72	1.1%
Pa-231	0.67	1.1%
Ra-226	59.29	92.68%
Sr-90	1.55	2.4%
U-233/234	0.62	1.0%
U-238	0.49	0.8%
Ra-228	0.09	0.1%
Th-232	0.12	0.19%
Th-230	0.37	0.6%

Table 2

Trench Soil	Mean (pCi/g)	Fraction
Ac-227	2.38	2.31%
Ra-226	42.06	40.88%
U-233/234	14.86	14.44%
U-235/236	1.15	1.12%
Pu-239/240	0.456	0.4%
Pa-231	2.09	2.03%
Sr-90	1.68	1.64%
Ra-228	0.73	0.71%
Th-232	0.77	0.75%
U-238	14.59	14.18%
Th-228	0.93	0.90%
Th-230	21.12	20.52%

Table 3

Soil+Lab Debris (all)	Mean (pCi/g)	Fraction
Pu-239/240	0.6	0.79%
Pa-231	0.3	0.53%
Ra-226	50.7	66.78%
Sr-90	0.8	1.21%
U-233/234	7.7	7.70%
U-238	7.5	7.47%
Th-230	10.7	10.55%
Ac-227	1.2	1.16%
Ra-228	0.4	0.42%
U-235/236	0.6	0.56%
Th-232	0.44	0.47%
Th-228	0.5	0.45%

Lab Debris Samples	
LDG01-3012-03.0-021	9/16/2002
LDG01-3013-03.0-010	9/16/2002
LDG01-3014-03.0-015	9/16/2002
LDG02-3017-03.0-001	9/16/2002
LDG04-3037-01.0-013	9/16/2002
Trench Samples	
TBG01-3000-06.0-050	9/11/2002
TBG01-3001-03.0-021	9/12/2002
TBG01-3002-02.0-025	9/11/2002
TBG01-3003-05.0-016	9/12/2002
TBG01-3004-02.0-000	9/13/2002
TBG01-3070-03.0-021	9/12/2002
TBG02-3015-04.5-001	9/16/2002
TBG02-3072-02.0	5/22/2002
TBG02-3073-02.0-001	9/16/2002
TBG02-3076-02.0-001	9/16/2002
TBG03-3018-01.0-011	9/14/2002
TBG03-3071-01.0-011	9/16/2002
TBG03-3074-01.0-011	9/16/2002
TBG04-3025-01.0-010	9/13/2002
TBG04-3026-05.0-013	9/13/2002
TBG04-3027-04.0-027	9/13/2002
TBG04-3028-06.0-030	9/13/2002
TBG04-3029-04.0-040	9/13/2002
TBG05-3040-05.0-012	9/14/2002
TBG05-3041-10.0-014	9/14/2002
TBG05-3042-04.0-035	9/14/2002
TBG05-3043-03.0-045	9/14/2002
TBG05-3044-07.0-050	9/14/2002
TBG06-3056-02.0-035	9/15/2002
TBG06-3057-02.0-045	9/15/2002
TBG06-3058-01.0-070	9/15/2002
TSG06-3055-015	9/15/2002
TSG06-3059-085	9/15/2002

Drum ID	SAIC Drum#	Gen. Date	Drum Contents	Drum Type	Field Gen. Event
Drum 6-A	168	Jun-02	Spoil Pile tarps	55 gallon	May 2002 Trenching Mobilization
Drum 6-B	173	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-C	175	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-D	165	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-E	164	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-F	163	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-G	177	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-I	176	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-J	166	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-K	172	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-M	169	Jun-04	Spoil Pile tarps	55 gallon	May 2002 Trenching Mobilization
Drum 6-N	174	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
Drum 6-P	167	Jun-02	PPE	55 gallon	May 2002 Trenching Mobilization
VPG PPE	148	Sep-02	PPE	55 gallon	September 2002 VPG Trenching Mobilization
VPG PPE	149	Sep-02	PPE	55 gallon	September 2002 VPG Trenching Mobilization
VPG PPE	150	Sep-02	PPE	55 gallon	September 2002 VPG Trenching Mobilization
VPG PPE	151	Sep-02	PPE	55 gallon	September 2002 VPG Trenching Mobilization
VPG Lab Debris	NA	Sep-02	Soil and Lab Debris	55 gallon	September 2002 VPG Trenching Mobilization
VPG Plastic Sheeting	NA	Sep-02	Plastic Sheeting	55 gallon	September 2002 VPG Trenching Mobilization
VPG Decon Solids	NA	Sep-02	Decon Solids	55 gallon	September 2002 VPG Trenching Mobilization
VPG PPE	117	Sep-02	PPE, plastic tarps	55 gallon	September 2002 VPG Trenching Mobilization
177729	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon	Drum Task - July 2003
177540	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon	Drum Task - July 2003
177730	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon	Drum Task - July 2003
177739	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon	Drum Task - July 2003
177740	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon	Drum Task - July 2003
177749	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon	Drum Task - July 2003
177750	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	55 gallon	Drum Task - July 2003
177738	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack	Drum Task - July 2003
177728	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack	Drum Task - July 2003
177733	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack	Drum Task - July 2003
177734	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack	Drum Task - July 2003
177737	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack	Drum Task - July 2003
177727	NA	July-03	Soil/Debris – Drums 9 to 15 VPG	Overpack	Drum Task - July 2003

Sample_No	Coll_date	Parameter	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
LDG01-3012-03.0-021	9/16/2002	Actinium-227, Gamma	-0.0685	0.27	pCi/g	U	0.419
LDG01-3013-03.0-010	9/16/2002	Actinium-227, Gamma	-0.0182	0.0411	pCi/g	U	0.0644
LDG01-3014-03.0-015	9/16/2002	Actinium-227, Gamma	-0.00855	0.11	pCi/g	U	0.147
LDG02-3017-03.0-001	9/16/2002	Actinium-227, Gamma	0.151	1.42	pCi/g	U	1.9
LDG04-3037-01.0-013	9/16/2002	Actinium-227, Gamma	0.018	0.178	pCi/g	U	0.268
LDG01-3012-03.0-021	9/16/2002	Americium-241, Gamma	-0.0826	0.102	pCi/g	U	0.144
LDG01-3013-03.0-010	9/16/2002	Americium-241, Gamma	0.00443	0.0192	pCi/g	U	0.0287
LDG01-3014-03.0-015	9/16/2002	Americium-241, Gamma	0.0427	0.0465	pCi/g	U	0.0623
LDG02-3017-03.0-001	9/16/2002	Americium-241, Gamma	0.154	0.717	pCi/g	U	1.09
LDG04-3037-01.0-013	9/16/2002	Americium-241, Gamma	-0.0748	0.09	pCi/g	U	0.116
LDG01-3012-03.0-021	9/16/2002	Cesium-137, Gamma	0	0.0543	pCi/g	UUI	0.0749
LDG01-3013-03.0-010	9/16/2002	Cesium-137, Gamma	-0.00288	0.0037	pCi/g	U	0.0059
LDG01-3014-03.0-015	9/16/2002	Cesium-137, Gamma	-0.000105	0.01	pCi/g	U	0.0138
LDG02-3017-03.0-001	9/16/2002	Cesium-137, Gamma	0.0376	0.0945	pCi/g	U	0.131
LDG04-3037-01.0-013	9/16/2002	Cesium-137, Gamma	0.00352	0.015	pCi/g	U	0.0246
LDG01-3012-03.0-021	9/16/2002	Cobalt-60, Gamma	0.0137	0.0285	pCi/g	U	0.0492
LDG01-3013-03.0-010	9/16/2002	Cobalt-60, Gamma	0.00265	0.00431	pCi/g	U	0.00697
LDG01-3014-03.0-015	9/16/2002	Cobalt-60, Gamma	0.00821	0.00914	pCi/g	U	0.0165
LDG02-3017-03.0-001	9/16/2002	Cobalt-60, Gamma	-0.0841	0.1	pCi/g	U	0.161
LDG04-3037-01.0-013	9/16/2002	Cobalt-60, Gamma	0.00187	0.0155	pCi/g	U	0.027
LDG01-3012-03.0-021	9/16/2002	Plutonium-238, Alpha	0.0216	0.0434	pCi/g	U	0.0909
LDG01-3013-03.0-010	9/16/2002	Plutonium-238, Alpha	-0.0173	0.085	pCi/g	U	0.171
LDG01-3014-03.0-015	9/16/2002	Plutonium-238, Alpha	0	2	pCi/g	U	0.0382
LDG02-3017-03.0-001	9/16/2002	Plutonium-238, Alpha	-0.000366	0.0637	pCi/g	U	0.176
LDG04-3037-01.0-013	9/16/2002	Plutonium-238, Alpha	-0.0174	0.0307	pCi/g	U	0.0777
LDG01-3012-03.0-021	9/16/2002	Plutonium-239/240, Alpha	-0.00856	0.107	pCi/g	U	0.25
LDG01-3013-03.0-010	9/16/2002	Plutonium-239/240, Alpha	0.0173	0.0489	pCi/g	U	0.0955
LDG01-3014-03.0-015	9/16/2002	Plutonium-239/240, Alpha	1.34	0.299	pCi/g		0.111
LDG02-3017-03.0-001	9/16/2002	Plutonium-239/240, Alpha	2.23	0.466	pCi/g		0.175
LDG04-3037-01.0-013	9/16/2002	Plutonium-239/240, Alpha	0.0231	0.0284	pCi/g	U	0.0442
LDG01-3012-03.0-021	9/16/2002	Protactinium-231, Gamma	0.463	1.05	pCi/g	U	1.66
LDG01-3013-03.0-010	9/16/2002	Protactinium-231, Gamma	0.0332	0.154	pCi/g	U	0.246
LDG01-3014-03.0-015	9/16/2002	Protactinium-231, Gamma	-0.0764	0.356	pCi/g	U	0.572
LDG02-3017-03.0-001	9/16/2002	Protactinium-231, Gamma	2.6	5.57	pCi/g	U	7.43
LDG04-3037-01.0-013	9/16/2002	Protactinium-231, Gamma	0.348	0.7	pCi/g	U	1.07
LDG01-3012-03.0-021	9/16/2002	Radium-226	0.268	0.194	pCi/g	U	0.271
LDG01-3013-03.0-010	9/16/2002	Radium-226	0.619	0.247	pCi/g		0.23
LDG01-3014-03.0-015	9/16/2002	Radium-226	2.34	0.468	pCi/g		0.309
LDG02-3017-03.0-001	9/16/2002	Radium-226	293	13.2	pCi/g		2.17
LDG04-3037-01.0-013	9/16/2002	Radium-226	0.222	0.204	pCi/g	U	0.314
LDG02-3017-03.0-001	9/16/2002	Radium-226, Gamma	193	21	pCi/g		0.248
LDG01-3012-03.0-021	9/16/2002	Radium-228, Gamma	0.0946	0.205	pCi/g	U	0.185
LDG01-3013-03.0-010	9/16/2002	Radium-228, Gamma	0.0135	0.0293	pCi/g	U	0.029
LDG01-3014-03.0-015	9/16/2002	Radium-228, Gamma	0.137	0.0676	pCi/g		0.0494
LDG02-3017-03.0-001	9/16/2002	Radium-228, Gamma	0.113	0.362	pCi/g	U	0.566
LDG04-3037-01.0-013	9/16/2002	Radium-228, Gamma	0.0753	0.0616	pCi/g	U	0.105
LDG01-3012-03.0-021	9/16/2002	Strontium-90	2.21	0.392	pCi/g		0.473
LDG01-3013-03.0-010	9/16/2002	Strontium-90	0.225	0.206	pCi/g	U	0.407
LDG01-3014-03.0-015	9/16/2002	Strontium-90	0.576	0.264	pCi/g		0.447
LDG02-3017-03.0-001	9/16/2002	Strontium-90	4.48	0.586	pCi/g		0.69
LDG04-3037-01.0-013	9/16/2002	Strontium-90	0.253	0.237	pCi/g	U	0.476
LDG01-3012-03.0-021	9/16/2002	Thorium-228, Alpha	-0.054	0.0851	pCi/g	U	0.228
LDG01-3013-03.0-010	9/16/2002	Thorium-228, Alpha	0.148	0.152	pCi/g	U	0.249
LDG01-3014-03.0-015	9/16/2002	Thorium-228, Alpha	-0.0387	0.344	pCi/g	U	0.474
LDG02-3017-03.0-001	9/16/2002	Thorium-228, Alpha	-0.0444	1.75	pCi/g	U	1.08
LDG04-3037-01.0-013	9/16/2002	Thorium-228, Alpha	0.00613	0.0459	pCi/g	U	0.461
LDG01-3012-03.0-021	9/16/2002	Thorium-228, Gamma	0	0.0625	pCi/g	UUI	0.0885
LDG01-3013-03.0-010	9/16/2002	Thorium-228, Gamma	0.0106	0.0122	pCi/g		0.00986
LDG01-3014-03.0-015	9/16/2002	Thorium-228, Gamma	0.0764	0.0237	pCi/g		0.0235
LDG02-3017-03.0-001	9/16/2002	Thorium-228, Gamma	0.11	0.235	pCi/g	U	0.316
LDG04-3037-01.0-013	9/16/2002	Thorium-228, Gamma	0.00385	0.0752	pCi/g	U	0.0415
LDG01-3012-03.0-021	9/16/2002	Thorium-230, Alpha	0.268	0.156	pCi/g	X	0.158
LDG01-3013-03.0-010	9/16/2002	Thorium-230, Alpha	0.144	0.14	pCi/g	U	0.228
LDG01-3014-03.0-015	9/16/2002	Thorium-230, Alpha	0.581	0.276	pCi/g	X	0.209
LDG02-3017-03.0-001	9/16/2002	Thorium-230, Alpha	0.636	0.451	pCi/g		0.558
LDG04-3037-01.0-013	9/16/2002	Thorium-230, Alpha	0.242	0.194	pCi/g	U	0.272
LDG01-3012-03.0-021	9/16/2002	Thorium-232, Alpha	0.068	0.0746	pCi/g	U	0.0974
LDG01-3013-03.0-010	9/16/2002	Thorium-232, Alpha	0.0415	0.0802	pCi/g	U	0.175
LDG01-3014-03.0-015	9/16/2002	Thorium-232, Alpha	0.0324	0.0625	pCi/g	U	0.138
LDG02-3017-03.0-001	9/16/2002	Thorium-232, Alpha	0.354	0.319	pCi/g	U	0.394
LDG04-3037-01.0-013	9/16/2002	Thorium-232, Alpha	0.108	0.134	pCi/g	U	0.233

Radionuclide	Mean (pCi/g)	Fraction
Ac-227	0.01	0.02%
Am-241	0.01	0.01%
Cs-137	0.01	0.01%
Co-60	-0.01	-0.02%
Pu-238	0.00	0.00%
Pu-239/240	0.72	1.13%
Pa-231	0.67	1.05%
Ra-226	59.29	92.68%
Sr-90	1.55	2.42%
U-233/234	0.62	0.97%
U-235/236	0.03	0.05%
U-238	0.49	0.76%
Th-228	0.00	0.01%
Th-230	0.37	0.58%
Th-232	0.12	0.19%
Ra-228	0.09	0.14%
Sum	**64.0**	**100%**
>99% of concentration,		99.9%

LDG01-3012-03.0-021	9/16/2002	Uranium-233/234, Alpha	0.471	0.252	pCi/g		0.26
LDG01-3013-03.0-010	9/16/2002	Uranium-233/234, Alpha	0.3	0.184	pCi/g		0.225
LDG01-3014-03.0-015	9/16/2002	Uranium-233/234, Alpha	0.687	0.303	pCi/g		0.24
LDG02-3017-03.0-001	9/16/2002	Uranium-233/234, Alpha	1.59	0.45	pCi/g		0.276
LDG04-3037-01.0-013	9/16/2002	Uranium-233/234, Alpha	0.0408	0.0782	pCi/g	U	0.167
LDG01-3012-03.0-021	9/16/2002	Uranium-235, Gamma	0.152	0.16	pCi/g	U	0.233
LDG01-3013-03.0-010	9/16/2002	Uranium-235, Gamma	0.00465	0.0389	pCi/g	U	0.0312
LDG01-3014-03.0-015	9/16/2002	Uranium-235, Gamma	0.0565	0.0816	pCi/g	U	0.082
LDG02-3017-03.0-001	9/16/2002	Uranium-235, Gamma	-0.176	0.736	pCi/g	U	1.11
LDG04-3037-01.0-013	9/16/2002	Uranium-235, Gamma	0.131	0.0993	pCi/g	U	0.15
LDG01-3012-03.0-021	9/16/2002	Uranium-235/236, Alpha	0.00774	0.0599	pCi/g	U	0.192
LDG01-3013-03.0-010	9/16/2002	Uranium-235/236, Alpha	-0.0266	0.024	pCi/g	U	0.179
LDG01-3014-03.0-015	9/16/2002	Uranium-235/236, Alpha	0.0157	0.086	pCi/g	U	0.241
LDG02-3017-03.0-001	9/16/2002	Uranium-235/236, Alpha	0.149	0.151	pCi/g	U	0.24
LDG04-3037-01.0-013	9/16/2002	Uranium-235/236, Alpha	0.00753	0.0583	pCi/g	U	0.187
LDG01-3012-03.0-021	9/16/2002	Uranium-238, Alpha	0.394	0.221	pCi/g		0.191
LDG01-3013-03.0-010	9/16/2002	Uranium-238, Alpha	0.354	0.189	pCi/g		0.167
LDG01-3014-03.0-015	9/16/2002	Uranium-238, Alpha	0.519	0.263	pCi/g		0.24
LDG02-3017-03.0-001	9/16/2002	Uranium-238, Alpha	1.18	0.371	pCi/g		0.157
LDG04-3037-01.0-013	9/16/2002	Uranium-238, Alpha	-0.00644	0.0129	pCi/g	U	0.142
LDG01-3012-03.0-021	9/16/2002	Uranium-238, Gamma	0	1.22	pCi/g	UUI	1.44
LDG01-3013-03.0-010	9/16/2002	Uranium-238, Gamma	0	0.162	pCi/g	UUI	0.255
LDG01-3014-03.0-015	9/16/2002	Uranium-238, Gamma	0	0.418	pCi/g	UUI	0.591
LDG02-3017-03.0-001	9/16/2002	Uranium-238, Gamma	2.5	6.87	pCi/g	U	8.67
LDG04-3037-01.0-013	9/16/2002	Uranium-238, Gamma	0	0.981	pCi/g	UUI	1.16

Sample_No	Coll_date	Parameter	Lab_Result	Uncertainty	Units	Lab_Qual	MDL	Actinium-227, Gamma	Americium-241, Gamma	Cs-137	Cobalt-60	Radium-228, Gamma	Strontium-90	Thorium-228, Gamma
TBG01-3000-06.0-050	9/11/2002	Actinium-227, Gamma	-0.0759	0.17	pCi/g	U	0.3	-0.0759	0.00228	-0.00786	-0.00146	0.976	0.00579	1.11
TBG01-3001-03.0-021	9/12/2002	Actinium-227, Gamma	0.0835	0.144	pCi/g	U	0.224	0.0835	0.0209	0.0491	-0.000494	1.01	-0.0771	0.986
TBG01-3002-02.0-025	9/11/2002	Actinium-227, Gamma	0.0958	0.155	pCi/g	U	0.282	0.0958	0.0316	0.167	0.000443	0.638	-0.0977	0.847
TBG01-3003-05.0-016	9/12/2002	Actinium-227, Gamma	-0.00803	0.0918	pCi/g	U	0.158	-0.00803	-0.0393	0.0572	0.000195	0.853	0.257	0.941
TBG01-3004-02.0-000	9/13/2002	Actinium-227, Gamma	0.0858	0.154	pCi/g	U	0.251	0.0858	0.0576	-0.000283	0.00795	1.1	0.198	1.16
TBG01-3070-03.0-021	9/12/2002	Actinium-227, Gamma	-0.574	0.567	pCi/g	U	0.807	-0.574	-0.00211	0.117	0.00902	0.713	27.1	0.912
TBG02-2857-02.0	5/22/2002	Actinium-227, Gamma	0.0555	0.316	pCi/g	U	0.482	61.52775	0.0032	0.281	0.01225	0.862	9.43	0.5584
TBG02-2858-02.0	5/22/2002	Actinium-227, Gamma	123	20	pCi/g		3.81	0.191	-0.0177	0.0474	0.00398	-1.37	1.37	0.97
Average of 2857 and 2858			61.52775					-0.295	-0.015	0.0826	0.00263	-0.254	1.62	0.903
TBG02-3015-04.5-001	9/16/2002	Actinium-227, Gamma	0.191	0.226	pCi/g	U	0.358	1.21	-0.132	0.164	0.0864	0.898	2.82	0.175
TBG02-3073-02.0-001	9/16/2002	Actinium-227, Gamma	-0.295	0.283	pCi/g	U	0.431	0.0376	0.0231	0.095	-0.011	0.828	0.525	0.946
TBG02-3076-02.0-001	9/16/2002	Actinium-227, Gamma	1.21	1.96	pCi/g	U	2.66	0.0567	-0.0133	-0.008	-0.0136	0.125	-0.0165	0.781
TBG03-3018-01.0-011	9/14/2002	Actinium-227, Gamma	0.0376	0.17	pCi/g	U	0.265	-0.0508	-0.0127	0.0278	-0.00389	0.785	-0.246	0.857
TBG04-3025-01.0-010	9/13/2002	Actinium-227, Gamma	0.0567	0.209	pCi/g	U	0.369	-0.106	0.0168	0.0497	-0.0229	0.717	0.176	0.824
TBG04-3026-05.0-013	9/13/2002	Actinium-227, Gamma	-0.0508	0.16	pCi/g	U	0.275	-0.145	-0.0525	0.00254	-0.0056	0.706	-0.0866	1.1
TBG04-3027-04.0-027	9/13/2002	Actinium-227, Gamma	-0.106	0.225	pCi/g	U	0.38	-0.0447	-0.00329	0.039	-0.00171	0.68	-0.455	0.916
TBG04-3028-06.0-030	9/13/2002	Actinium-227, Gamma	-0.145	0.178	pCi/g	U	0.259	-0.122	0.0144	0.169	0.0138	0.869	-0.0107	0.87
TBG04-3029-04.0-040	9/13/2002	Actinium-227, Gamma	-0.0447	0.102	pCi/g	U	0.183	-0.0193	-0.00155	0.00356	-0.00659	0.872	-0.065	1.1
TBG05-3040-05.0-012	9/14/2002	Actinium-227, Gamma	-0.122	0.162	pCi/g	U	0.272	0.0199	-0.0214	0.00196	-0.00413	0.893	0.128	0.96
TBG05-3041-10.0-014	9/14/2002	Actinium-227, Gamma	-0.0193	0.111	pCi/g	U	0.198	-0.0608	-0.0216	0.0341	0.00412	1.02	0.103	1.08
TBG05-3042-04.0-035	9/14/2002	Actinium-227, Gamma	0.0199	0.101	pCi/g	U	0.178	0.0117	-0.0202	0.0162	-0.00582	0.791	0.27	1.04
TBG05-3043-03.0-045	9/14/2002	Actinium-227, Gamma	-0.0608	0.118	pCi/g	U	0.199	-0.0527	-0.0719	-0.00106	-0.0135	1.06	-0.0413	1.28
TBG05-3044-07.0-050	9/14/2002	Actinium-227, Gamma	0.0117	0.145	pCi/g	U	0.265	-0.0106	-0.0259	0.0103	-0.00931	0.887	0.307	1.14
TBG06-3056-02.0-035	9/15/2002	Actinium-227, Gamma	-0.0527	0.112	pCi/g	U	0.192	-0.0192	-0.0235	0.0845	0.0113	1.07	0.0153	1.03
TBG06-3057-02.0-045	9/15/2002	Actinium-227, Gamma	-0.0106	0.104	pCi/g	U	0.188	0.126	0.0125	0.0133	-0.00146	1	0.0726	1.05
TBG06-3058-01.0-070	9/15/2002	Actinium-227, Gamma	-0.0192	0.11	pCi/g	U	0.189	-0.0362	0.0136	0.17	0.00312	0.915	0.453	0.974
TSG06-3055-015	9/15/2002	Actinium-227, Gamma	0.126	0.146	pCi/g	U	0.259	2.377904615	-0.010691154	0.064040654	0.002067077	0.96	1.682876538	0.942707692
TSG06-3059-085	9/15/2002	Actinium-227, Gamma	-0.0362	0.103	pCi/g	U	0.185					0.89		
												0.731928571		

Radionuclide	Mean (pCi/g)	Fraction
Ac-227	2.378	2.3%
Am-241	-0.011	0.0%
Cs-137	0.064	0.1%
Co-60	0.002	0.0%
Pu-238	0.019	0.0%
Pu-239/240	0.456	0.4%
Pa-231	2.091	2.0%
Ra-226	42.063	40.9%
Sr-90	1.683	1.6%
U-233/234	14.859	14.4%
U-235/236	1.152	1.1%
U-238	14.590	14.2%
Th-228	0.925	0.9%
Th-230	21.117	20.5%
Th-232	0.769	0.7%
Ra-228	0.732	0.7%
Sum	**102.888**	100.0%
>99% of concentration,		99.9%

Sample_No	Coll_date	Parameter	Lab_Result	Uncertainty	Units	Lab_Qual	MDL	Plutonium-238, Alpha	Plutonium-239/240, Alpha	Pa-231	Ra-226	Thorium-228, Alpha	Thorium-230, Alpha	Thorium-232, Alpha
TBG01-3000-06.0-050	9/11/2002	Americium-241, Gamma	0.00228	0.0253	pCi/g	U	0.0426	0	-0.0186	0.664	15	1.29	1.33	0.899
TBG01-3001-03.0-021	9/12/2002	Americium-241, Gamma	0.0209	0.0191	pCi/g	U	0.0333	-0.0198	0.0214	0.312	0.758	0.863	0.765	0.638
TBG01-3002-02.0-025	9/11/2002	Americium-241, Gamma	0.0316	0.0489	pCi/g	U	0.0834	-0.0163	0.00951	-0.251	0.962	0.847	1.45	0.659
TBG01-3003-05.0-016	9/12/2002	Americium-241, Gamma	-0.0393	0.0441	pCi/g	U	0.0832	0.0362	0.00139	-0.0806	0.608	0.731	0.862	0.55
TBG01-3004-02.0-000	9/13/2002	Americium-241, Gamma	0.0576	0.0447	pCi/g	U	0.0782	-0.0147	0.00855	0.151	0.94	0.798	0.896	0.604
TBG01-3070-03.0-021	9/12/2002	Americium-241, Gamma	-0.00211	0.296	pCi/g	U	0.525	-0.0231	0.498	-0.889	0.814	0.327	1.09	0.533
TBG02-2857-02.0	5/22/2002	Americium-241, Gamma	0.0064	0.0593	pCi/g	U	0.0693	-0.0189	8.8655	54.36	25.8	1.1985	520.615	2.9715
TBG02-2858-02.0	5/22/2002	Americium-241, Gamma	0	1.04	pCi/g	UUI	1.67	0.145	0.409	0.0243	1007.25	0.969	0.973	0.665
Average of 2857 and 2858			0.0032					-0.0139	-0.0208	-0.737	10.4	0.776	1.03	0.647
TBG02-3015-04.5-001	9/16/2002	Americium-241, Gamma	-0.0177	0.0608	pCi/g	U	0.112	0.0323	0.481	-0.449	17.7	0.102	0.188	0.0488
TBG02-3073-02.0-001	9/16/2002	Americium-241, Gamma	-0.015	0.0744	pCi/g	U	0.138	0.0438	2.42	0.337	2.36	1.04	1.16	0.542
TBG02-3076-02.0-001	9/16/2002	Americium-241, Gamma	-0.132	0.911	pCi/g	U	1.23	-0.0594	-0.00424	-0.402	0.59	0.688	1.01	0.609
TBG03-3018-01.0-011	9/14/2002	Americium-241, Gamma	0.0231	0.074	pCi/g	U	0.144	0.0262	-0.0895	-0.0633	0.648	0.966	1	0.856
TBG04-3025-01.0-010	9/13/2002	Americium-241, Gamma	-0.0133	0.031	pCi/g	U	0.0531	-0.0177	0.0294	0.305	0.668	1.2	1.5	0.667
TBG04-3026-05.0-013	9/13/2002	Americium-241, Gamma	-0.0127	0.0758	pCi/g	U	0.118	0.0125	-0.0106	-0.00458	0.718	1.39	1.12	1.03
TBG04-3027-04.0-027	9/13/2002	Americium-241, Gamma	0.0168	0.0326	pCi/g	U	0.0569	-0.0271	0.0195	0.171	0.705	1.08	1.02	0.822
TBG04-3028-06.0-030	9/13/2002	Americium-241, Gamma	-0.0525	0.0851	pCi/g	U	0.143	0.0682	-0.00668	-0.224	0.995	0.696	1.55	0.603
TBG04-3029-04.0-040	9/13/2002	Americium-241, Gamma	-0.00329	0.0332	pCi/g	U	0.0562	0.038	-0.0515	0.32	0.703	1.04	1.35	0.771
TBG05-3040-05.0-012	9/14/2002	Americium-241, Gamma	0.0144	0.0245	pCi/g	U	0.0428	0	-0.143	0.275	0.612	1.01	1.42	0.56
TBG05-3041-10.0-014	9/14/2002	Americium-241, Gamma	-0.00155	0.034	pCi/g	U	0.0626	-0.00716	0.0536	0.194	0.794	1.4	1.53	0.855
TBG05-3042-04.0-035	9/14/2002	Americium-241, Gamma	-0.0214	0.0649	pCi/g	U	0.0912	0.0923	-0.0159	-0.0315	0.689	0.638	1.04	0.873
TBG05-3043-03.0-045	9/14/2002	Americium-241, Gamma	-0.0216	0.0576	pCi/g	U	0.108	-0.00879	-0.0219	0.0835	0.816	1.33	1.25	0.9
TBG05-3044-07.0-050	9/14/2002	Americium-241, Gamma	-0.0202	0.0497	pCi/g	U	0.0834	0.0364	0.0338	0.206	0.796			
TBG06-3056-02.0-035	9/15/2002	Americium-241, Gamma	-0.0719	0.0622	pCi/g	U	0.105							

TBG06-3057-02.0-045	9/15/2002	Americium-241, Gamma	-0.0259	0.0317	pCi/g	U	0.0589	0.151	-0.0398	-0.213	0.747	1.12	1.69	0.936
TBG06-3058-01.0-070	9/15/2002	Americium-241, Gamma	-0.0235	0.0544	pCi/g	U	0.103	0.0544	-0.0243	0.221	0.781	1.1	1.27	0.743
TSG06-3055-015	9/15/2002	Americium-241, Gamma	0.0125	0.0379	pCi/g	U	0.0391	0.00555	-0.05	0.0752	0.792	0.763	0.98	0.621
TSG06-3059-085	9/15/2002	Americium-241, Gamma	0.0136	0.033	pCi/g	U	0.0566	1.43E-07	-0.0319	2.090539231	42.06330769	0.689	0.942	0.386
TBG01-3000-06.0-050	9/11/2002	Cesium-137, Gamma	-0.00786	0.0187	pCi/g	U	0.0327	0.019074079	0.456367778			0.925057692	21.11657692	0.768819231
TBG01-3001-03.0-021	9/12/2002	Cesium-137, Gamma	0.0491	0.0227	pCi/g		0.027							
TBG01-3002-02.0-025	9/11/2002	Cesium-137, Gamma	0.167	0.0332	pCi/g		0.026							
TBG01-3003-05.0-016	9/12/2002	Cesium-137, Gamma	0.0572	0.0155	pCi/g		0.0134							
TBG01-3004-02.0-000	9/13/2002	Cesium-137, Gamma	-0.000283	0.0132	pCi/g	U	0.0233							
TBG01-3070-03.0-021	9/12/2002	Cesium-137, Gamma	0.117	0.0581	pCi/g		0.0607							
TBG02-2857-02.0	5/22/2002	Cesium-137, Gamma	0.069	0.0446	pCi/g		0.0407							
TBG02-2858-02.0	5/22/2002	Cesium-137, Gamma	0.493	0.23	pCi/g		0.296							
Average of 2857 and 2858			0.281											
TBG02-3015-04.5-001	9/16/2002	Cesium-137, Gamma	0.0474	0.0238	pCi/g		0.0267							
TBG02-3073-02.0-001	9/16/2002	Cesium-137, Gamma	0.0826	0.0337	pCi/g		0.0324							
TBG02-3076-02.0-001	9/16/2002	Cesium-137, Gamma	0.164	0.152	pCi/g	U	0.225							
TBG03-3018-01.0-011	9/14/2002	Cesium-137, Gamma	0.095	0.0238	pCi/g		0.0212							
TBG04-3025-01.0-010	9/13/2002	Cesium-137, Gamma	-0.008	0.025	pCi/g	U	0.0426							
TBG04-3026-05.0-013	9/13/2002	Cesium-137, Gamma	0.0278	0.0279	pCi/g	U	0.0322							
TBG04-3027-04.0-027	9/13/2002	Cesium-137, Gamma	0.0497	0.0376	pCi/g		0.045							
TBG04-3028-06.0-030	9/13/2002	Cesium-137, Gamma	0.00254	0.0147	pCi/g	U	0.0254							
TBG04-3029-04.0-040	9/13/2002	Cesium-137, Gamma	0.039	0.0162	pCi/g		0.0169							
TBG05-3040-05.0-012	9/14/2002	Cesium-137, Gamma	0.169	0.0376	pCi/g		0.0313							
TBG05-3041-10.0-014	9/14/2002	Cesium-137, Gamma	0.00356	0.0138	pCi/g	U	0.0175							
TBG05-3042-04.0-035	9/14/2002	Cesium-137, Gamma	0.00196	0.00889	pCi/g	U	0.0156							
TBG05-3043-03.0-045	9/14/2002	Cesium-137, Gamma	0.0341	0.0173	pCi/g		0.0182							
TBG05-3044-07.0-050	9/14/2002	Cesium-137, Gamma	0.0162	0.0215	pCi/g	U	0.0263							
TBG06-3056-02.0-035	9/15/2002	Cesium-137, Gamma	-0.00106	0.0101	pCi/g	U	0.0172							
TBG06-3057-02.0-045	9/15/2002	Cesium-137, Gamma	0.0103	0.0113	pCi/g	U	0.018							
TBG06-3058-01.0-070	9/15/2002	Cesium-137, Gamma	0.0845	0.0209	pCi/g		0.0169							
TSG06-3055-015	9/15/2002	Cesium-137, Gamma	0.0133	0.0184	pCi/g	U	0.0288							
TSG06-3059-085	9/15/2002	Cesium-137, Gamma	0.17	0.0272	pCi/g		0.017							
TBG01-3000-06.0-050	9/11/2002	Cobalt-60, Gamma	-0.00146	0.0259	pCi/g	U	0.04							
TBG01-3001-03.0-021	9/12/2002	Cobalt-60, Gamma	-0.000494	0.0156	pCi/g	U	0.0264							
TBG01-3002-02.0-025	9/11/2002	Cobalt-60, Gamma	0.000443	0.0144	pCi/g	U	0.0254							
TBG01-3003-05.0-016	9/12/2002	Cobalt-60, Gamma	0.000195	0.00868	pCi/g	U	0.0147							
TBG01-3004-02.0-000	9/13/2002	Cobalt-60, Gamma	0.00795	0.0139	pCi/g	U	0.0251							
TBG01-3070-03.0-021	9/12/2002	Cobalt-60, Gamma	0.00902	0.0426	pCi/g	U	0.0732							
TBG02-2857-02.0	5/22/2002	Cobalt-60, Gamma	-0.0469	0.031	pCi/g	U	0.0498							
TBG02-2858-02.0	5/22/2002	Cobalt-60, Gamma	0.0714	0.4	pCi/g	U	0.384							
Average of 2857 and 2858			0.01225											
TBG02-3015-04.5-001	9/16/2002	Cobalt-60, Gamma	0.00398	0.0192	pCi/g	U	0.0326							
TBG02-3073-02.0-001	9/16/2002	Cobalt-60, Gamma	0.00263	0.0231	pCi/g	U	0.0391							
TBG02-3076-02.0-001	9/16/2002	Cobalt-60, Gamma	0.0864	0.164	pCi/g	U	0.281							
TBG03-3018-01.0-011	9/14/2002	Cobalt-60, Gamma	-0.011	0.0143	pCi/g	U	0.0231							
TBG04-3025-01.0-010	9/13/2002	Cobalt-60, Gamma	-0.0136	0.0254	pCi/g	U	0.042							
TBG04-3026-05.0-013	9/13/2002	Cobalt-60, Gamma	-0.00389	0.0167	pCi/g	U	0.0293							
TBG04-3027-04.0-027	9/13/2002	Cobalt-60, Gamma	-0.0229	0.0278	pCi/g	U	0.0446							
TBG04-3028-06.0-030	9/13/2002	Cobalt-60, Gamma	-0.0056	0.015	pCi/g	U	0.0251							
TBG04-3029-04.0-040	9/13/2002	Cobalt-60, Gamma	-0.00171	0.0106	pCi/g	U	0.0182							
TBG05-3040-05.0-012	9/14/2002	Cobalt-60, Gamma	0.0138	0.0285	pCi/g	U	0.0315							
TBG05-3041-10.0-014	9/14/2002	Cobalt-60, Gamma	-0.00659	0.0121	pCi/g	U	0.0201							
TBG05-3042-04.0-035	9/14/2002	Cobalt-60, Gamma	-0.00413	0.00943	pCi/g	U	0.0157							
TBG05-3043-03.0-045	9/14/2002	Cobalt-60, Gamma	0.00412	0.0113	pCi/g	U	0.0195							
TBG05-3044-07.0-050	9/14/2002	Cobalt-60, Gamma	-0.00582	0.0151	pCi/g	U	0.0257							
TBG06-3056-02.0-035	9/15/2002	Cobalt-60, Gamma	-0.0135	0.0107	pCi/g	U	0.0168							

Uranium-233/234, Alpha	Uranium-235, Gamma	Uranium-235/236, Alpha	Uranium-238, Alpha	Uranium-238, Gamma
0.976	0.00564	0.085	0.714	1.56
0.844	0.0549	0.12	1.05	1.53
0.486	0.103	0.0353	0.889	0.673
1.14	0.0472	0.0761	0.95	0.795
0.754	0.0611	-0.00874	0.664	1.8
1.51	-0.0525	0.0478	1.57	2.94
361.95	66.561	27.8227	354.345	731.025
0.95	0.104	0.131	0.798	0.56
1.24	0.0796	0.00989	0.838	0.877
2.69	0.0552	0.258	2.16	0.339
0.851	0.209	0.0185	0.917	0.615
0.472	0.0795	0.029	1	1.74
0.967	0.0948	0.0811	0.392	2.01
0.595	0.0988	0.0517	1.01	1.57
0.554	-0.037	0.183	0.709	0.707
0.451	0.0899	0.0424	0.637	0.809
3.2	0.102	0.0731	2.6	3.08
0.872	0.0899	0.0901	1.12	0.617
0.588	0.0617	0.0638	0.814	1.12
1.21	0.127	0.156	0.974	1.71
0.765	0.0923	0.0849	0.75	1.01
0.765	0.0246	0.244	0.73	1.16
0.703	0.115	0.0815	1.12	1.31
0.359	0.0221	0.00132	0.767	0.8
0.576	0.12	0.06	0.96	2
0.855	0.176	0.107	0.855	1.21
14.85857692	2.634028462	1.151710385	14.58973077	29.36796154

TBG06-3057-02.0-045	9/15/2002	Cobalt-60, Gamma	-0.00931	0.0108	pCi/g	U	0.0177
TBG06-3058-01.0-070	9/15/2002	Cobalt-60, Gamma	0.0113	0.00954	pCi/g	U	0.0193
TSG06-3055-015	9/15/2002	Cobalt-60, Gamma	-0.00146	0.0166	pCi/g	U	0.0284
TSG06-3059-085	9/15/2002	Cobalt-60, Gamma	0.00312	0.0104	pCi/g	U	0.0183
TBG01-3000-06.0-050	9/11/2002	Plutonium-238, Alpha	0	2	pCi/g	U	0.116
TBG01-3001-03.0-021	9/12/2002	Plutonium-238, Alpha	-0.0198	0.0282	pCi/g	U	0.257
TBG01-3002-02.0-025	9/11/2002	Plutonium-238, Alpha	-0.0163	0.0232	pCi/g	U	0.211
TBG01-3003-05.0-016	9/12/2002	Plutonium-238, Alpha	0.0362	0.104	pCi/g	U	0.263
TBG01-3004-02.0-000	9/13/2002	Plutonium-238, Alpha	-0.0147	0.0208	pCi/g	U	0.19
TBG01-3070-03.0-021	9/12/2002	Plutonium-238, Alpha	-0.0231	0.0269	pCi/g	U	0.223
TBG02-2857-02.0	5/22/2002	Plutonium-238, Alpha	0.0181	0.0828	pCi/g	U	0.15
TBG02-2858-02.0	5/22/2002	Plutonium-238, Alpha	0.111	0.198	pCi/g	U	0.424
Average of 2857 and 2858		Plutonium-238, Alpha	0.06455				
TBG02-3015-04.5-001	9/16/2002	Plutonium-238, Alpha	0.145	0.176	pCi/g	U	0.332
TBG02-3072-02.0	5/22/2002	Plutonium-238, Alpha	-0.0139	0.0198	pCi/g	U	0.0667
TBG02-3073-02.0-001	9/16/2002	Plutonium-238, Alpha	0.0323	0.18	pCi/g	U	0.452
TBG02-3076-02.0-001	9/16/2002	Plutonium-238, Alpha	0.0438	0.0947	pCi/g	U	0.166
TBG03-3018-01.0-011	9/14/2002	Plutonium-238, Alpha	-0.0594	0.0456	pCi/g	U	0.319
TBG04-3025-01.0-010	9/13/2002	Plutonium-238, Alpha	0.0262	0.071	pCi/g	U	0.182
TBG04-3026-05.0-013	9/13/2002	Plutonium-238, Alpha	-0.0177	0.0251	pCi/g	U	0.229
TBG04-3027-04.0-027	9/13/2002	Plutonium-238, Alpha	0.0125	0.0508	pCi/g	U	0.15
TBG04-3028-06.0-030	9/13/2002	Plutonium-238, Alpha	-0.0271	0.0315	pCi/g	U	0.261
TBG04-3029-04.0-040	9/13/2002	Plutonium-238, Alpha	0.0682	0.219	pCi/g	U	0.51
TBG05-3040-05.0-012	9/14/2002	Plutonium-238, Alpha	0.038	0.178	pCi/g	U	0.434
TBG05-3041-10.0-014	9/14/2002	Plutonium-238, Alpha	0	2	pCi/g	U	0.0947
TBG05-3042-04.0-035	9/14/2002	Plutonium-238, Alpha	-0.00716	0.0143	pCi/g	U	0.157
TBG05-3043-03.0-045	9/14/2002	Plutonium-238, Alpha	0.0923	0.151	pCi/g	U	0.309
TBG05-3044-07.0-050	9/14/2002	Plutonium-238, Alpha	-0.00879	0.0176	pCi/g	U	0.193
TBG06-3056-02.0-035	9/15/2002	Plutonium-238, Alpha	0.0364	0.141	pCi/g	U	0.354
TBG06-3057-02.0-045	9/15/2002	Plutonium-238, Alpha	0.151	0.233	pCi/g	U	0.478
TBG06-3058-01.0-070	9/15/2002	Plutonium-238, Alpha	0.0544	0.221	pCi/g	U	0.531
TSG06-3055-015	9/15/2002	Plutonium-238, Alpha	0.00555	0.154	pCi/g	U	0.421
TSG06-3059-085	9/15/2002	Plutonium-238, Alpha	1.43E-07	0.181	pCi/g	U	0.478
TBG01-3000-06.0-050	9/11/2002	Plutonium-239/240, Alpha	-0.0186	0.0264	pCi/g	U	0.241
TBG01-3001-03.0-021	9/12/2002	Plutonium-239/240, Alpha	0.0214	0.0871	pCi/g	U	0.257
TBG01-3002-02.0-025	9/11/2002	Plutonium-239/240, Alpha	0.00951	0.0736	pCi/g	U	0.236
TBG01-3003-05.0-016	9/12/2002	Plutonium-239/240, Alpha	0.00139	0.0771	pCi/g	U	0.263
TBG01-3004-02.0-000	9/13/2002	Plutonium-239/240, Alpha	0.00855	0.0662	pCi/g	U	0.212
TBG01-3070-03.0-021	9/12/2002	Plutonium-239/240, Alpha	0.498	0.267	pCi/g		0.2
TBG02-2857-02.0	5/22/2002	Plutonium-239/240, Alpha	17.6	1.82	pCi/g		0.0663
TBG02-2858-02.0	5/22/2002	Plutonium-239/240, Alpha	0.131	0.141	pCi/g	U	0.184
Average of 2857 and 2858			8.8655				
TBG02-3015-04.5-001	9/16/2002	Plutonium-239/240, Alpha	0.409	0.239	pCi/g		0.24
TBG02-3072-02.0	5/22/2002	Plutonium-239/240, Alpha	-0.0208	0.0693	pCi/g	U	0.141
TBG02-3073-02.0-001	9/16/2002	Plutonium-239/240, Alpha	0.481	0.28	pCi/g		0.303
TBG02-3076-02.0-001	9/16/2002	Plutonium-239/240, Alpha	2.42	0.357	pCi/g		0.0975
TBG03-3018-01.0-011	9/14/2002	Plutonium-239/240, Alpha	-0.00424	0.137	pCi/g	U	0.396
TBG04-3025-01.0-010	9/13/2002	Plutonium-239/240, Alpha	-0.0895	0.0948	pCi/g	U	0.407
TBG04-3026-05.0-013	9/13/2002	Plutonium-239/240, Alpha	0.0294	0.111	pCi/g	U	0.297
TBG04-3027-04.0-027	9/13/2002	Plutonium-239/240, Alpha	-0.0106	0.0557	pCi/g	U	0.206
TBG04-3028-06.0-030	9/13/2002	Plutonium-239/240, Alpha	0.0195	0.0794	pCi/g	U	0.234
TBG04-3029-04.0-040	9/13/2002	Plutonium-239/240, Alpha	-0.00668	0.0758	pCi/g	U	0.27
TBG05-3040-05.0-012	9/14/2002	Plutonium-239/240, Alpha	-0.0515	0.0395	pCi/g	U	0.276
TBG05-3041-10.0-014	9/14/2002	Plutonium-239/240, Alpha	-0.143	0.0981	pCi/g	U	0.439
TBG05-3042-04.0-035	9/14/2002	Plutonium-239/240, Alpha	0.0536	0.108	pCi/g	U	0.241
TBG05-3043-03.0-045	9/14/2002	Plutonium-239/240, Alpha	-0.0159	0.0836	pCi/g	U	0.309
TBG05-3044-07.0-050	9/14/2002	Plutonium-239/240, Alpha	-0.0219	0.144	pCi/g	U	0.432
TBG06-3056-02.0-035	9/15/2002	Plutonium-239/240, Alpha	0.0338	0.0971	pCi/g	U	0.245

TBG06-3057-02.0-045	9/15/2002	Plutonium-239/240, Alpha	-0.0398	0.0402	pCi/g	U	0.313
TBG06-3058-01.0-070	9/15/2002	Plutonium-239/240, Alpha	-0.0243	0.0848	pCi/g	U	0.323
TSG06-3055-015	9/15/2002	Plutonium-239/240, Alpha	-0.05	0.0414	pCi/g	U	0.298
TSG06-3059-085	9/15/2002	Plutonium-239/240, Alpha	-0.0319	0.0322	pCi/g	U	0.251
TBG01-3004-02.0-000	9/13/2002	Potassium-40, Gamma	18.7	2.16	pCi/g		0.195
TBG02-3015-04.5-001	9/16/2002	Potassium-40, Gamma	18.2	2.12	pCi/g		0.315
TBG02-3073-02.0-001	9/16/2002	Potassium-40, Gamma	18.6	2.17	pCi/g		0.384
TBG03-3018-01.0-011	9/14/2002	Potassium-40, Gamma	15.8	1.85	pCi/g		0.216
TBG04-3025-01.0-010	9/13/2002	Potassium-40, Gamma	12.1	1.48	pCi/g		0.367
TBG04-3026-05.0-013	9/13/2002	Potassium-40, Gamma	13.4	1.5	pCi/g		0.251
TBG04-3027-04.0-027	9/13/2002	Potassium-40, Gamma	12.8	1.56	pCi/g		0.418
TBG04-3028-06.0-030	9/13/2002	Potassium-40, Gamma	20.1	2.35	pCi/g		0.219
TBG04-3029-04.0-040	9/13/2002	Potassium-40, Gamma	18	2.04	pCi/g		0.145
TBG05-3040-05.0-012	9/14/2002	Potassium-40, Gamma	15.7	1.71	pCi/g		0.271
TBG05-3041-10.0-014	9/14/2002	Potassium-40, Gamma	21.6	2.44	pCi/g		0.157
TBG05-3043-03.0-045	9/14/2002	Potassium-40, Gamma	19.9	2.27	pCi/g		0.16
TBG05-3044-07.0-050	9/14/2002	Potassium-40, Gamma	19.9	2.32	pCi/g		0.215
TBG06-3056-02.0-035	9/15/2002	Potassium-40, Gamma	22.7	2.58	pCi/g		0.144
TBG06-3057-02.0-045	9/15/2002	Potassium-40, Gamma	19.1	2.17	pCi/g		0.154
TBG06-3058-01.0-070	9/15/2002	Potassium-40, Gamma	18.4	2.11	pCi/g		0.149
TSG06-3055-015	9/15/2002	Potassium-40, Gamma	17.4	1.86	pCi/g		0.25
TSG06-3059-085	9/15/2002	Potassium-40, Gamma	17.5	1.98	pCi/g		0.15
TBG01-3000-06.0-050	9/11/2002	Protactinium-231, Gamma	0.664	0.658	pCi/g	U	1.22
TBG01-3001-03.0-021	9/12/2002	Protactinium-231, Gamma	0.312	0.518	pCi/g	U	0.892
TBG01-3002-02.0-025	9/11/2002	Protactinium-231, Gamma	-0.251	0.602	pCi/g	U	1.06
TBG01-3003-05.0-016	9/12/2002	Protactinium-231, Gamma	-0.0806	0.346	pCi/g	U	0.589
TBG01-3004-02.0-000	9/13/2002	Protactinium-231, Gamma	0.151	0.545	pCi/g	U	0.988
TBG01-3070-03.0-021	9/12/2002	Protactinium-231, Gamma	-0.889	2	pCi/g	U	3.27
TBG02-2857-02.0	5/22/2002	Protactinium-231, Gamma	0.72	1.13	pCi/g	U	1.91
TBG02-2858-02.0	5/22/2002	Protactinium-231, Gamma	108	20.8	pCi/g		15
Average of 2857 and 2858			54.36				
TBG02-3015-04.5-001	9/16/2002	Protactinium-231, Gamma	0.0243	0.806	pCi/g	U	1.42
TBG02-3073-02.0-001	9/16/2002	Protactinium-231, Gamma	-0.737	0.99	pCi/g	U	1.72
TBG02-3076-02.0-001	9/16/2002	Protactinium-231, Gamma	-0.449	7.1	pCi/g	U	10.6
TBG03-3018-01.0-011	9/14/2002	Protactinium-231, Gamma	0.337	0.613	pCi/g	U	1.07
TBG04-3025-01.0-010	9/13/2002	Protactinium-231, Gamma	-0.402	0.826	pCi/g	U	1.39
TBG04-3026-05.0-013	9/13/2002	Protactinium-231, Gamma	-0.0633	0.627	pCi/g	U	1.08
TBG04-3027-04.0-027	9/13/2002	Protactinium-231, Gamma	0.305	0.887	pCi/g	U	1.54
TBG04-3028-06.0-030	9/13/2002	Protactinium-231, Gamma	-0.00458	0.601	pCi/g	U	1.03
TBG04-3029-04.0-040	9/13/2002	Protactinium-231, Gamma	0.171	0.394	pCi/g	U	0.714
TBG05-3040-05.0-012	9/14/2002	Protactinium-231, Gamma	-0.224	0.637	pCi/g	U	1.08
TBG05-3041-10.0-014	9/14/2002	Protactinium-231, Gamma	0.32	0.559	pCi/g	U	0.79
TBG05-3042-04.0-035	9/14/2002	Protactinium-231, Gamma	0.275	0.387	pCi/g	U	0.686
TBG05-3043-03.0-045	9/14/2002	Protactinium-231, Gamma	0.194	0.46	pCi/g	U	0.789
TBG05-3044-07.0-050	9/14/2002	Protactinium-231, Gamma	-0.0315	0.581	pCi/g	U	1.05
TBG06-3056-02.0-035	9/15/2002	Protactinium-231, Gamma	0.0835	0.437	pCi/g	U	0.757
TBG06-3057-02.0-045	9/15/2002	Protactinium-231, Gamma	0.206	0.407	pCi/g	U	0.74
TBG06-3058-01.0-070	9/15/2002	Protactinium-231, Gamma	-0.213	0.431	pCi/g	U	0.722
TSG06-3055-015	9/15/2002	Protactinium-231, Gamma	0.221	0.57	pCi/g	U	1
TSG06-3059-085	9/15/2002	Protactinium-231, Gamma	0.0752	0.4	pCi/g	U	0.721
TBG02-3076-02.0-001	9/16/2002	Radium-226	15	0.851	pCi/g		0.176
TBG01-3000-06.0-050	9/11/2002	Radium-226, Gamma	0.758	0.135	pCi/g		0.059
TBG01-3001-03.0-021	9/12/2002	Radium-226, Gamma	0.962	0.146	pCi/g		0.0443
TBG01-3002-02.0-025	9/11/2002	Radium-226, Gamma	0.608	0.101	pCi/g		0.0506
TBG01-3003-05.0-016	9/12/2002	Radium-226, Gamma	0.94	0.123	pCi/g		0.0259
TBG01-3004-02.0-000	9/13/2002	Radium-226, Gamma	0.814	0.12	pCi/g		0.0404
TBG01-3070-03.0-021	9/12/2002	Radium-226, Gamma	25.8	2.83	pCi/g		0.118
TBG02-2857-02.0	5/22/2002	Radium-226, Gamma	34.5	4.22	pCi/g		0.0753

TBG02-2858-02.0	5/22/2002	Radium-226, Gamma	1980	236	pCi/g		0.556
Average of 2857 and 2858			1007.25				
TBG02-3015-04.5-001	9/16/2002	Radium-226, Gamma	10.4	1.29	pCi/g		0.052
TBG02-3073-02.0-001	9/16/2002	Radium-226, Gamma	17.7	2.2	pCi/g		0.0608
TBG03-3018-01.0-011	9/14/2002	Radium-226, Gamma	2.36	0.296	pCi/g		0.0432
TBG04-3025-01.0-010	9/13/2002	Radium-226, Gamma	0.59	0.128	pCi/g		0.0756
TBG04-3026-05.0-013	9/13/2002	Radium-226, Gamma	0.648	0.115	pCi/g		0.0492
TBG04-3027-04.0-027	9/13/2002	Radium-226, Gamma	0.668	0.138	pCi/g		0.0781
TBG04-3028-06.0-030	9/13/2002	Radium-226, Gamma	0.718	0.11	pCi/g		0.0472
TBG04-3029-04.0-040	9/13/2002	Radium-226, Gamma	0.705	0.102	pCi/g		0.0309
TBG05-3040-05.0-012	9/14/2002	Radium-226, Gamma	0.995	0.154	pCi/g		0.057
TBG05-3041-10.0-014	9/14/2002	Radium-226, Gamma	0.703	0.1	pCi/g		0.0326
TBG05-3042-04.0-035	9/14/2002	Radium-226, Gamma	0.612	0.0909	pCi/g		0.0289
TBG05-3043-03.0-045	9/14/2002	Radium-226, Gamma	0.794	0.113	pCi/g		0.0324
TBG05-3044-07.0-050	9/14/2002	Radium-226, Gamma	0.689	0.107	pCi/g		0.0458
TBG06-3056-02.0-035	9/15/2002	Radium-226, Gamma	0.816	0.113	pCi/g		0.0322
TBG06-3057-02.0-045	9/15/2002	Radium-226, Gamma	0.796	0.111	pCi/g		0.0315
TBG06-3058-01.0-070	9/15/2002	Radium-226, Gamma	0.747	0.107	pCi/g		0.0318
TSG06-3055-015	9/15/2002	Radium-226, Gamma	0.781	0.131	pCi/g		0.052
TSG06-3059-085	9/15/2002	Radium-226, Gamma	0.792	0.112	pCi/g		0.0324
TBG01-3000-06.0-050	9/11/2002	Radium-228, Gamma	0.976	0.203	pCi/g		0.127
TBG01-3001-03.0-021	9/12/2002	Radium-228, Gamma	1.01	0.176	pCi/g		0.0857
TBG01-3002-02.0-025	9/11/2002	Radium-228, Gamma	0.638	0.156	pCi/g		0.0918
TBG01-3003-05.0-016	9/12/2002	Radium-228, Gamma	0.853	0.157	pCi/g		0.0498
TBG01-3004-02.0-000	9/13/2002	Radium-228, Gamma	1.1	0.218	pCi/g		0.0817
TBG01-3070-03.0-021	9/12/2002	Radium-228, Gamma	0.713	0.272	pCi/g		0.253
TBG02-2857-02.0	5/22/2002	Radium-228, Gamma	0.862	0.21	pCi/g		0.177
TBG02-2858-02.0	5/22/2002	Radium-228, Gamma	-1.37	0.939	pCi/g	U	1.3
Average of 2857 and 2858			-0.254				
TBG02-3015-04.5-001	9/16/2002	Radium-228, Gamma	0.898	0.192	pCi/g		0.109
TBG02-3073-02.0-001	9/16/2002	Radium-228, Gamma	0.828	0.189	pCi/g		0.132
TBG02-3076-02.0-001	9/16/2002	Radium-228, Gamma	0.125	0.617	pCi/g	U	0.979
TBG03-3018-01.0-011	9/14/2002	Radium-228, Gamma	0.785	0.177	pCi/g		0.0795
TBG04-3025-01.0-010	9/13/2002	Radium-228, Gamma	0.717	0.187	pCi/g		0.138
TBG04-3026-05.0-013	9/13/2002	Radium-228, Gamma	0.706	0.151	pCi/g		0.0996
TBG04-3027-04.0-027	9/13/2002	Radium-228, Gamma	0.68	0.201	pCi/g		0.168
TBG04-3028-06.0-030	9/13/2002	Radium-228, Gamma	0.869	0.197	pCi/g		0.0895
TBG04-3029-04.0-040	9/13/2002	Radium-228, Gamma	0.872	0.166	pCi/g		0.0615
TBG05-3040-05.0-012	9/14/2002	Radium-228, Gamma	0.893	0.178	pCi/g		0.11
TBG05-3041-10.0-014	9/14/2002	Radium-228, Gamma	1.02	0.193	pCi/g		0.0663
TBG05-3042-04.0-035	9/14/2002	Radium-228, Gamma	0.791	0.147	pCi/g		0.0546
TBG05-3043-03.0-045	9/14/2002	Radium-228, Gamma	1.06	0.188	pCi/g		0.0617
TBG05-3044-07.0-050	9/14/2002	Radium-228, Gamma	0.887	0.188	pCi/g		0.0828
TBG06-3056-02.0-035	9/15/2002	Radium-228, Gamma	1.07	0.196	pCi/g		0.0623
TBG06-3057-02.0-045	9/15/2002	Radium-228, Gamma	1	0.189	pCi/g		0.0603
TBG06-3058-01.0-070	9/15/2002	Radium-228, Gamma	0.915	0.169	pCi/g		0.0609
TSG06-3055-015	9/15/2002	Radium-228, Gamma	0.96	0.18	pCi/g		0.103
TSG06-3059-085	9/15/2002	Radium-228, Gamma	0.89	0.174	pCi/g		0.0602
TBG01-3000-06.0-050	9/11/2002	Strontium-90	0.00579	0.17	pCi/g	U	0.43
TBG01-3001-03.0-021	9/12/2002	Strontium-90	-0.0771	0.188	pCi/g	U	0.519
TBG01-3002-02.0-025	9/11/2002	Strontium-90	-0.0977	0.196	pCi/g	U	0.532
TBG01-3003-05.0-016	9/12/2002	Strontium-90	0.257	0.239	pCi/g	U	0.483
TBG01-3004-02.0-000	9/13/2002	Strontium-90	0.198	0.457	pCi/g	U	1.05
TBG01-3070-03.0-021	9/12/2002	Strontium-90	27.1	1.55	pCi/g		0.514
TBG02-2857-02.0	5/22/2002	Strontium-90	10.3	0.815	pCi/g		0.483
TBG02-2858-02.0	5/22/2002	Strontium-90	8.56	0.692	pCi/g		0.43
Average of 2857 and 2858			9.43				
TBG02-3015-04.5-001	9/16/2002	Strontium-90	1.37	0.539	pCi/g		0.992

TBG02-3073-02.0-001	9/16/2002	Strontium-90	1.62	0.69	pCi/g		1.25
TBG02-3076-02.0-001	9/16/2002	Strontium-90	2.82	0.466	pCi/g		0.525
TBG03-3018-01.0-011	9/14/2002	Strontium-90	0.525	0.446	pCi/g	U	0.931
TBG04-3025-01.0-010	9/13/2002	Strontium-90	-0.0165	0.519	pCi/g	U	1.25
TBG04-3026-05.0-013	9/13/2002	Strontium-90	-0.246	0.488	pCi/g	U	1.23
TBG04-3027-04.0-027	9/13/2002	Strontium-90	0.176	0.462	pCi/g	U	1.06
TBG04-3028-06.0-030	9/13/2002	Strontium-90	-0.0866	0.431	pCi/g	U	1.07
TBG04-3029-04.0-040	9/13/2002	Strontium-90	-0.455	0.419	pCi/g	U	1.16
TBG05-3040-05.0-012	9/14/2002	Strontium-90	-0.0107	0.38	pCi/g	U	0.932
TBG05-3041-10.0-014	9/14/2002	Strontium-90	-0.065	0.386	pCi/g	U	0.954
TBG05-3042-04.0-035	9/14/2002	Strontium-90	0.128	0.405	pCi/g	U	0.944
TBG05-3043-03.0-045	9/14/2002	Strontium-90	0.103	0.49	pCi/g	U	1.15
TBG05-3044-07.0-050	9/14/2002	Strontium-90	0.27	0.369	pCi/g	U	0.814
TBG06-3056-02.0-035	9/15/2002	Strontium-90	-0.0413	0.344	pCi/g	U	0.849
TBG06-3057-02.0-045	9/15/2002	Strontium-90	0.307	0.482	pCi/g	U	1.08
TBG06-3058-01.0-070	9/15/2002	Strontium-90	0.0153	0.322	pCi/g	U	0.778
TSG06-3055-015	9/15/2002	Strontium-90	0.0726	0.465	pCi/g	U	1.1
TSG06-3059-085	9/15/2002	Strontium-90	0.453	0.401	pCi/g	U	0.836
TBG01-3000-06.0-050	9/11/2002	Thorium-228, Alpha	1.29	0.436	pCi/g		0.439
TBG01-3001-03.0-021	9/12/2002	Thorium-228, Alpha	0.863	0.282	pCi/g		0.237
TBG01-3002-02.0-025	9/11/2002	Thorium-228, Alpha	0.847	0.397	pCi/g		0.499
TBG01-3003-05.0-016	9/12/2002	Thorium-228, Alpha	0.731	0.283	pCi/g		0.299
TBG01-3004-02.0-000	9/13/2002	Thorium-228, Alpha	0.798	0.341	pCi/g		0.416
TBG01-3070-03.0-021	9/12/2002	Thorium-228, Alpha	0.327	0.28	pCi/g	U	0.472
TBG02-2857-02.0	5/22/2002	Thorium-228, Alpha	0.737	0.436	pCi/g		0.544
TBG02-2858-02.0	5/22/2002	Thorium-228, Alpha	1.66	4.76	pCi/g	U	14.3
Average of 2857 and 2858			1.1985				
TBG02-3015-04.5-001	9/16/2002	Thorium-228, Alpha	0.969	0.305	pCi/g		0.277
TBG02-3073-02.0-001	9/16/2002	Thorium-228, Alpha	0.776	0.435	pCi/g		0.517
TBG02-3076-02.0-001	9/16/2002	Thorium-228, Alpha	0.102	0.16	pCi/g	U	0.384
TBG03-3018-01.0-011	9/14/2002	Thorium-228, Alpha	1.04	0.38	pCi/g		0.366
TBG04-3025-01.0-010	9/13/2002	Thorium-228, Alpha	0.688	0.363	pCi/g		0.42
TBG04-3026-05.0-013	9/13/2002	Thorium-228, Alpha	0.966	0.393	pCi/g		0.436
TBG04-3027-04.0-027	9/13/2002	Thorium-228, Alpha	1.2	0.461	pCi/g		0.453
TBG04-3028-06.0-030	9/13/2002	Thorium-228, Alpha	1.39	0.545	pCi/g		0.504
TBG04-3029-04.0-040	9/13/2002	Thorium-228, Alpha	1.08	0.453	pCi/g		0.509
TBG05-3040-05.0-012	9/14/2002	Thorium-228, Alpha	0.696	0.375	pCi/g		0.54
TBG05-3041-10.0-014	9/14/2002	Thorium-228, Alpha	1.04	0.425	pCi/g		0.494
TBG05-3042-04.0-035	9/14/2002	Thorium-228, Alpha	1.01	0.462	pCi/g		0.515
TBG05-3043-03.0-045	9/14/2002	Thorium-228, Alpha	1.4	0.498	pCi/g		0.474
TBG05-3044-07.0-050	9/14/2002	Thorium-228, Alpha	0.638	0.391	pCi/g		0.582
TBG06-3056-02.0-035	9/15/2002	Thorium-228, Alpha	1.33	0.641	pCi/g		0.478
TBG06-3057-02.0-045	9/15/2002	Thorium-228, Alpha	1.12	0.65	pCi/g		0.749
TBG06-3058-01.0-070	9/15/2002	Thorium-228, Alpha	1.1	0.587	pCi/g		0.608
TSG06-3055-015	9/15/2002	Thorium-228, Alpha	0.763	0.496	pCi/g		0.575
TSG06-3059-085	9/15/2002	Thorium-228, Alpha	0.689	0.398	pCi/g		0.493
TBG01-3000-06.0-050	9/11/2002	Thorium-228, Gamma	1.11	0.18	pCi/g		0.0426
TBG01-3001-03.0-021	9/12/2002	Thorium-228, Gamma	0.986	0.142	pCi/g		0.0312
TBG01-3002-02.0-025	9/11/2002	Thorium-228, Gamma	0.847	0.107	pCi/g		0.0385
TBG01-3003-05.0-016	9/12/2002	Thorium-228, Gamma	0.941	0.106	pCi/g		0.0228
TBG01-3004-02.0-000	9/13/2002	Thorium-228, Gamma	1.16	0.137	pCi/g		0.0366
TBG01-3070-03.0-021	9/12/2002	Thorium-228, Gamma	0.912	0.161	pCi/g		0.119
TBG02-2857-02.0	5/22/2002	Thorium-228, Gamma	1.02	0.145	pCi/g		0.0869
TBG02-2858-02.0	5/22/2002	Thorium-228, Gamma	0.0968	0.586	pCi/g	U	0.705
Average of 2857 and 2858			0.56				
TBG02-3015-04.5-001	9/16/2002	Thorium-228, Gamma	0.97	0.118	pCi/g		0.0525
TBG02-3073-02.0-001	9/16/2002	Thorium-228, Gamma	0.903	0.116	pCi/g		0.0628
TBG02-3076-02.0-001	9/16/2002	Thorium-228, Gamma	0.175	0.445	pCi/g	U	0.41

TBG03-3018-01.0-011	9/14/2002	Thorium-228, Gamma	0.946	0.115	pCi/g		0.0395
TBG04-3025-01.0-010	9/13/2002	Thorium-228, Gamma	0.781	0.124	pCi/g		0.0589
TBG04-3026-05.0-013	9/13/2002	Thorium-228, Gamma	0.857	0.105	pCi/g		0.0377
TBG04-3027-04.0-027	9/13/2002	Thorium-228, Gamma	0.824	0.131	pCi/g		0.0525
TBG04-3028-06.0-030	9/13/2002	Thorium-228, Gamma	1.1	0.132	pCi/g		0.0395
TBG04-3029-04.0-040	9/13/2002	Thorium-228, Gamma	0.916	0.107	pCi/g		0.0261
TBG05-3040-05.0-012	9/14/2002	Thorium-228, Gamma	0.87	0.129	pCi/g		0.0377
TBG05-3041-10.0-014	9/14/2002	Thorium-228, Gamma	1.1	0.127	pCi/g		0.03
TBG05-3042-04.0-035	9/14/2002	Thorium-228, Gamma	0.96	0.111	pCi/g		0.0256
TBG05-3043-03.0-045	9/14/2002	Thorium-228, Gamma	1.08	0.123	pCi/g		0.0289
TBG05-3044-07.0-050	9/14/2002	Thorium-228, Gamma	1.04	0.126	pCi/g		0.0385
TBG06-3056-02.0-035	9/15/2002	Thorium-228, Gamma	1.28	0.145	pCi/g		0.0275
TBG06-3057-02.0-045	9/15/2002	Thorium-228, Gamma	1.14	0.131	pCi/g		0.0268
TBG06-3058-01.0-070	9/15/2002	Thorium-228, Gamma	1.03	0.117	pCi/g		0.027
TSG06-3055-015	9/15/2002	Thorium-228, Gamma	1.05	0.153	pCi/g		0.0383
TSG06-3059-085	9/15/2002	Thorium-228, Gamma	0.974	0.113	pCi/g		0.0261
TBG01-3000-06.0-050	9/11/2002	Thorium-230, Alpha	1.33	0.391	pCi/g		0.149
TBG01-3001-03.0-021	9/12/2002	Thorium-230, Alpha	0.765	0.242	pCi/g		0.116
TBG01-3002-02.0-025	9/11/2002	Thorium-230, Alpha	1.45	0.463	pCi/g		0.208
TBG01-3003-05.0-016	9/12/2002	Thorium-230, Alpha	0.862	0.278	pCi/g		0.143
TBG01-3004-02.0-000	9/13/2002	Thorium-230, Alpha	0.896	0.32	pCi/g		0.275
TBG01-3070-03.0-021	9/12/2002	Thorium-230, Alpha	1.09	0.377	pCi/g		0.205
TBG02-2857-02.0	5/22/2002	Thorium-230, Alpha	1.23	0.506	pCi/g	X	0.225
TBG02-2858-02.0	5/22/2002	Thorium-230, Alpha	1040	311	pCi/g		8.1
Average of 2857 and 2858			520.615				
TBG02-3015-04.5-001	9/16/2002	Thorium-230, Alpha	0.973	0.282	pCi/g		0.152
TBG02-3073-02.0-001	9/16/2002	Thorium-230, Alpha	1.03	0.466	pCi/g		0.267
TBG02-3076-02.0-001	9/16/2002	Thorium-230, Alpha	0.188	0.157	pCi/g	U	0.198
TBG03-3018-01.0-011	9/14/2002	Thorium-230, Alpha	1.16	0.401	pCi/g		0.371
TBG04-3025-01.0-010	9/13/2002	Thorium-230, Alpha	1.01	0.408	pCi/g		0.236
TBG04-3026-05.0-013	9/13/2002	Thorium-230, Alpha	1	0.351	pCi/g		0.222
TBG04-3027-04.0-027	9/13/2002	Thorium-230, Alpha	1.5	0.48	pCi/g		0.189
TBG04-3028-06.0-030	9/13/2002	Thorium-230, Alpha	1.12	0.435	pCi/g		0.287
TBG04-3029-04.0-040	9/13/2002	Thorium-230, Alpha	1.02	0.374	pCi/g		0.178
TBG05-3040-05.0-012	9/14/2002	Thorium-230, Alpha	1.55	0.472	pCi/g		0.157
TBG05-3041-10.0-014	9/14/2002	Thorium-230, Alpha	1.35	0.428	pCi/g		0.16
TBG05-3042-04.0-035	9/14/2002	Thorium-230, Alpha	1.42	0.5	pCi/g		0.082
TBG05-3043-03.0-045	9/14/2002	Thorium-230, Alpha	1.53	0.483	pCi/g		0.243
TBG05-3044-07.0-050	9/14/2002	Thorium-230, Alpha	1.04	0.395	pCi/g		0.269
TBG06-3056-02.0-035	9/15/2002	Thorium-230, Alpha	1.25	0.592	pCi/g		0.273
TBG06-3057-02.0-045	9/15/2002	Thorium-230, Alpha	1.69	0.771	pCi/g		0.387
TBG06-3058-01.0-070	9/15/2002	Thorium-230, Alpha	1.27	0.591	pCi/g		0.137
TSG06-3055-015	9/15/2002	Thorium-230, Alpha	0.98	0.528	pCi/g		0.262
TSG06-3059-085	9/15/2002	Thorium-230, Alpha	0.942	0.427	pCi/g		0.213
TBG01-3000-06.0-050	9/11/2002	Thorium-232, Alpha	0.899	0.305	pCi/g		0.178
TBG01-3001-03.0-021	9/12/2002	Thorium-232, Alpha	0.638	0.216	pCi/g		0.102
TBG01-3002-02.0-025	9/11/2002	Thorium-232, Alpha	0.659	0.28	pCi/g		0.189
TBG01-3003-05.0-016	9/12/2002	Thorium-232, Alpha	0.55	0.205	pCi/g		0.0446
TBG01-3004-02.0-000	9/13/2002	Thorium-232, Alpha	0.604	0.238	pCi/g		0.159
TBG01-3070-03.0-021	9/12/2002	Thorium-232, Alpha	0.533	0.232	pCi/g		0.0592
TBG02-2857-02.0	5/22/2002	Thorium-232, Alpha	0.713	0.348	pCi/g		0.0893
TBG02-2858-02.0	5/22/2002	Thorium-232, Alpha	5.23	4.39	pCi/g		5.02
Average of 2857 and 2858			2.9715				
TBG02-3015-04.5-001	9/16/2002	Thorium-232, Alpha	0.665	0.218	pCi/g		0.118
TBG02-3073-02.0-001	9/16/2002	Thorium-232, Alpha	0.647	0.349	pCi/g		0.246
TBG02-3076-02.0-001	9/16/2002	Thorium-232, Alpha	0.0488	0.0806	pCi/g	U	0.15
TBG03-3018-01.0-011	9/14/2002	Thorium-232, Alpha	0.542	0.23	pCi/g		0.144
TBG04-3025-01.0-010	9/13/2002	Thorium-232, Alpha	0.609	0.293	pCi/g		0.171

TBG04-3026-05.0-013	9/13/2002	Thorium-232, Alpha	0.856	0.314	pCi/g		0.192
TBG04-3027-04.0-027	9/13/2002	Thorium-232, Alpha	0.667	0.286	pCi/g		0.209
TBG04-3028-06.0-030	9/13/2002	Thorium-232, Alpha	1.03	0.406	pCi/g		0.21
TBG04-3029-04.0-040	9/13/2002	Thorium-232, Alpha	0.822	0.325	pCi/g		0.146
TBG05-3040-05.0-012	9/14/2002	Thorium-232, Alpha	0.603	0.254	pCi/g		0.129
TBG05-3041-10.0-014	9/14/2002	Thorium-232, Alpha	0.771	0.298	pCi/g		0.16
TBG05-3042-04.0-035	9/14/2002	Thorium-232, Alpha	0.56	0.28	pCi/g		0.172
TBG05-3043-03.0-045	9/14/2002	Thorium-232, Alpha	0.855	0.325	pCi/g		0.168
TBG05-3044-07.0-050	9/14/2002	Thorium-232, Alpha	0.873	0.346	pCi/g		0.186
TBG06-3056-02.0-035	9/15/2002	Thorium-232, Alpha	0.9	0.477	pCi/g		0.273
TBG06-3057-02.0-045	9/15/2002	Thorium-232, Alpha	0.936	0.523	pCi/g		0.355
TBG06-3058-01.0-070	9/15/2002	Thorium-232, Alpha	0.743	0.438	pCi/g		0.411
TSG06-3055-015	9/15/2002	Thorium-232, Alpha	0.621	0.402	pCi/g		0.309
TSG06-3059-085	9/15/2002	Thorium-232, Alpha	0.386	0.256	pCi/g		0.238
TBG01-3000-06.0-050	9/11/2002	Uranium-233/234, Alpha	0.976	0.377	pCi/g		0.248
TBG01-3001-03.0-021	9/12/2002	Uranium-233/234, Alpha	0.844	0.365	pCi/g		0.255
TBG01-3002-02.0-025	9/11/2002	Uranium-233/234, Alpha	0.486	0.347	pCi/g	U	0.579
TBG01-3003-05.0-016	9/12/2002	Uranium-233/234, Alpha	1.14	0.455	pCi/g		0.287
TBG01-3004-02.0-000	9/13/2002	Uranium-233/234, Alpha	0.754	0.349	pCi/g		0.192
TBG01-3070-03.0-021	9/12/2002	Uranium-233/234, Alpha	1.51	0.455	pCi/g		0.25
TBG02-2857-02.0	5/22/2002	Uranium-233/234, Alpha	1.9	0.488	pCi/g		0.183
TBG02-2858-02.0	5/22/2002	Uranium-233/234, Alpha	722	113	pCi/g		6.76
Average of 2857 and 2858			361.95				
TBG02-3015-04.5-001	9/16/2002	Uranium-233/234, Alpha	0.95	0.365	pCi/g		0.316
TBG02-3073-02.0-001	9/16/2002	Uranium-233/234, Alpha	1.24	0.464	pCi/g		0.333
TBG02-3076-02.0-001	9/16/2002	Uranium-233/234, Alpha	2.69	0.663	pCi/g		0.21
TBG03-3018-01.0-011	9/14/2002	Uranium-233/234, Alpha	0.851	0.362	pCi/g		0.267
TBG04-3025-01.0-010	9/13/2002	Uranium-233/234, Alpha	0.472	0.28	pCi/g		0.273
TBG04-3026-05.0-013	9/13/2002	Uranium-233/234, Alpha	0.967	0.401	pCi/g		0.246
TBG04-3027-04.0-027	9/13/2002	Uranium-233/234, Alpha	0.595	0.282	pCi/g		0.232
TBG04-3028-06.0-030	9/13/2002	Uranium-233/234, Alpha	0.554	0.297	pCi/g		0.261
TBG04-3029-04.0-040	9/13/2002	Uranium-233/234, Alpha	0.451	0.285	pCi/g		0.381
TBG05-3040-05.0-012	9/14/2002	Uranium-233/234, Alpha	3.2	1.94	pCi/g		1.81
TBG05-3041-10.0-014	9/14/2002	Uranium-233/234, Alpha	0.872	0.365	pCi/g		0.263
TBG05-3042-04.0-035	9/14/2002	Uranium-233/234, Alpha	0.588	0.31	pCi/g		0.251
TBG05-3043-03.0-045	9/14/2002	Uranium-233/234, Alpha	1.21	0.495	pCi/g		0.374
TBG05-3044-07.0-050	9/14/2002	Uranium-233/234, Alpha	0.765	0.331	pCi/g		0.273
TBG06-3056-02.0-035	9/15/2002	Uranium-233/234, Alpha	0.765	0.352	pCi/g		0.262
TBG06-3057-02.0-045	9/15/2002	Uranium-233/234, Alpha	0.703	0.371	pCi/g		0.367
TBG06-3058-01.0-070	9/15/2002	Uranium-233/234, Alpha	0.359	0.258	pCi/g	U	0.37
TSG06-3055-015	9/15/2002	Uranium-233/234, Alpha	0.576	0.32	pCi/g		0.29
TSG06-3059-085	9/15/2002	Uranium-233/234, Alpha	0.855	0.393	pCi/g		0.293
TBG01-3000-06.0-050	9/11/2002	Uranium-235, Gamma	0.00564	0.163	pCi/g	U	0.16
TBG01-3001-03.0-021	9/12/2002	Uranium-235, Gamma	0.0549	0.126	pCi/g	U	0.122
TBG01-3002-02.0-025	9/11/2002	Uranium-235, Gamma	0.103	0.0913	pCi/g	U	0.162
TBG01-3003-05.0-016	9/12/2002	Uranium-235, Gamma	0.0472	0.0954	pCi/g	U	0.0935
TBG01-3004-02.0-000	9/13/2002	Uranium-235, Gamma	0.0611	0.159	pCi/g	U	0.147
TBG01-3070-03.0-021	9/12/2002	Uranium-235, Gamma	-0.0525	0.278	pCi/g	U	0.473
TBG02-2857-02.0	5/22/2002	Uranium-235, Gamma	0.122	0.217	pCi/g	U	0.264
TBG02-2858-02.0	5/22/2002	Uranium-235, Gamma	133	23.3	pCi/g		2.1
Average of 2857 and 2858			66.561				
TBG02-3015-04.5-001	9/16/2002	Uranium-235, Gamma	0.104	0.121	pCi/g	U	0.209
TBG02-3073-02.0-001	9/16/2002	Uranium-235, Gamma	0.0796	0.191	pCi/g	U	0.252
TBG02-3076-02.0-001	9/16/2002	Uranium-235, Gamma	0.0552	0.978	pCi/g	U	1.47
TBG03-3018-01.0-011	9/14/2002	Uranium-235, Gamma	0.209	0.146	pCi/g		0.164
TBG04-3025-01.0-010	9/13/2002	Uranium-235, Gamma	0.0795	0.17	pCi/g	U	0.204
TBG04-3026-05.0-013	9/13/2002	Uranium-235, Gamma	0.0948	0.126	pCi/g	U	0.155
TBG04-3027-04.0-027	9/13/2002	Uranium-235, Gamma	0.0988	0.193	pCi/g	U	0.218

TBG04-3028-06.0-030	9/13/2002	Uranium-235, Gamma	-0.037	0.0867	pCi/g	U	0.153
TBG04-3029-04.0-040	9/13/2002	Uranium-235, Gamma	0.0899	0.103	pCi/g	U	0.109
TBG05-3040-05.0-012	9/14/2002	Uranium-235, Gamma	0.102	0.141	pCi/g	U	0.157
TBG05-3041-10.0-014	9/14/2002	Uranium-235, Gamma	0.0899	0.121	pCi/g	U	0.121
TBG05-3042-04.0-035	9/14/2002	Uranium-235, Gamma	0.0617	0.111	pCi/g	U	0.108
TBG05-3043-03.0-045	9/14/2002	Uranium-235, Gamma	0.127	0.13	pCi/g		0.124
TBG05-3044-07.0-050	9/14/2002	Uranium-235, Gamma	0.0923	0.203	pCi/g	U	0.164
TBG06-3056-02.0-035	9/15/2002	Uranium-235, Gamma	0.0246	0.0642	pCi/g	U	0.117
TBG06-3057-02.0-045	9/15/2002	Uranium-235, Gamma	0.115	0.107	pCi/g		0.113
TBG06-3058-01.0-070	9/15/2002	Uranium-235, Gamma	0.0221	0.1	pCi/g	U	0.113
TSG06-3055-015	9/15/2002	Uranium-235, Gamma	0.12	0.137	pCi/g	U	0.146
TSG06-3059-085	9/15/2002	Uranium-235, Gamma	0.176	0.117	pCi/g		0.112
TBG01-3000-06.0-050	9/11/2002	Uranium-235/236, Alpha	0.085	0.108	pCi/g	U	0.162
TBG01-3001-03.0-021	9/12/2002	Uranium-235/236, Alpha	0.12	0.157	pCi/g	U	0.29
TBG01-3002-02.0-025	9/11/2002	Uranium-235/236, Alpha	0.0353	0.122	pCi/g	U	0.309
TBG01-3003-05.0-016	9/12/2002	Uranium-235/236, Alpha	0.0761	0.108	pCi/g	U	0.114
TBG01-3004-02.0-000	9/13/2002	Uranium-235/236, Alpha	-0.00874	0.0175	pCi/g	U	0.192
TBG01-3070-03.0-021	9/12/2002	Uranium-235/236, Alpha	0.0478	0.0964	pCi/g	U	0.215
TBG02-2857-02.0	5/22/2002	Uranium-235/236, Alpha	0.0454	0.0645	pCi/g	U	0.0681
TBG02-2858-02.0	5/22/2002	Uranium-235/236, Alpha	55.6	15.2	pCi/g		2.25
Average of 2857 and 2858			27.8227				
TBG02-3015-04.5-001	9/16/2002	Uranium-235/236, Alpha	0.131	0.125	pCi/g	U	0.145
TBG02-3073-02.0-001	9/16/2002	Uranium-235/236, Alpha	0.00989	0.0765	pCi/g	U	0.245
TBG02-3076-02.0-001	9/16/2002	Uranium-235/236, Alpha	0.258	0.181	pCi/g		0.193
TBG03-3018-01.0-011	9/14/2002	Uranium-235/236, Alpha	0.0185	0.101	pCi/g	U	0.284
TBG04-3025-01.0-010	9/13/2002	Uranium-235/236, Alpha	0.029	0.11	pCi/g	U	0.294
TBG04-3026-05.0-013	9/13/2002	Uranium-235/236, Alpha	0.0811	0.127	pCi/g	U	0.247
TBG04-3027-04.0-027	9/13/2002	Uranium-235/236, Alpha	0.0517	0.104	pCi/g	U	0.232
TBG04-3028-06.0-030	9/13/2002	Uranium-235/236, Alpha	0.183	0.174	pCi/g	U	0.241
TBG04-3029-04.0-040	9/13/2002	Uranium-235/236, Alpha	0.0424	0.0979	pCi/g	U	0.23
TBG05-3040-05.0-012	9/14/2002	Uranium-235/236, Alpha	0.0731	0.566	pCi/g	U	1.81
TBG05-3041-10.0-014	9/14/2002	Uranium-235/236, Alpha	0.0901	0.115	pCi/g	U	0.172
TBG05-3042-04.0-035	9/14/2002	Uranium-235/236, Alpha	0.0638	0.104	pCi/g	U	0.191
TBG05-3043-03.0-045	9/14/2002	Uranium-235/236, Alpha	0.156	0.169	pCi/g	U	0.219
TBG05-3044-07.0-050	9/14/2002	Uranium-235/236, Alpha	0.0849	0.126	pCi/g	U	0.245
TBG06-3056-02.0-035	9/15/2002	Uranium-235/236, Alpha	0.244	0.187	pCi/g		0.104
TBG06-3057-02.0-045	9/15/2002	Uranium-235/236, Alpha	0.0815	0.116	pCi/g	U	0.122
TBG06-3058-01.0-070	9/15/2002	Uranium-235/236, Alpha	0.00132	0.0733	pCi/g	U	0.25
TSG06-3055-015	9/15/2002	Uranium-235/236, Alpha	0.06	0.141	pCi/g	U	0.33
TSG06-3059-085	9/15/2002	Uranium-235/236, Alpha	0.107	0.137	pCi/g	U	0.205
TBG01-3000-06.0-050	9/11/2002	Uranium-238, Alpha	0.714	0.316	pCi/g		0.213
TBG01-3001-03.0-021	9/12/2002	Uranium-238, Alpha	1.05	0.409	pCi/g		0.255
TBG01-3002-02.0-025	9/11/2002	Uranium-238, Alpha	0.889	0.366	pCi/g		0.226
TBG01-3003-05.0-016	9/12/2002	Uranium-238, Alpha	0.95	0.412	pCi/g		0.287
TBG01-3004-02.0-000	9/13/2002	Uranium-238, Alpha	0.664	0.331	pCi/g		0.252
TBG01-3070-03.0-021	9/12/2002	Uranium-238, Alpha	1.57	0.46	pCi/g		0.165
TBG02-2857-02.0	5/22/2002	Uranium-238, Alpha	1.69	0.452	pCi/g		0.141
TBG02-2858-02.0	5/22/2002	Uranium-238, Alpha	707	111	pCi/g		4.66
Average of 2857 and 2858			354.345				
TBG02-3015-04.5-001	9/16/2002	Uranium-238, Alpha	0.798	0.326	pCi/g		0.259
TBG02-3073-02.0-001	9/16/2002	Uranium-238, Alpha	0.838	0.373	pCi/g		0.285
TBG02-3076-02.0-001	9/16/2002	Uranium-238, Alpha	2.16	0.573	pCi/g		0.147
TBG03-3018-01.0-011	9/14/2002	Uranium-238, Alpha	0.917	0.377	pCi/g		0.267
TBG04-3025-01.0-010	9/13/2002	Uranium-238, Alpha	1	0.407	pCi/g		0.191
TBG04-3026-05.0-013	9/13/2002	Uranium-238, Alpha	0.392	0.254	pCi/g		0.268
TBG04-3027-04.0-027	9/13/2002	Uranium-238, Alpha	1.01	0.371	pCi/g		0.199
TBG04-3028-06.0-030	9/13/2002	Uranium-238, Alpha	0.709	0.332	pCi/g		0.215
TBG04-3029-04.0-040	9/13/2002	Uranium-238, Alpha	0.637	0.309	pCi/g		0.23

TBG05-3040-05.0-012	9/14/2002	Uranium-238, Alpha	2.6	1.68	pCi/g		0.781
TBG05-3041-10.0-014	9/14/2002	Uranium-238, Alpha	1.12	0.413	pCi/g		0.202
TBG05-3042-04.0-035	9/14/2002	Uranium-238, Alpha	0.814	0.365	pCi/g		0.225
TBG05-3043-03.0-045	9/14/2002	Uranium-238, Alpha	0.974	0.43	pCi/g		0.258
TBG05-3044-07.0-050	9/14/2002	Uranium-238, Alpha	0.75	0.325	pCi/g		0.245
TBG06-3056-02.0-035	9/15/2002	Uranium-238, Alpha	0.73	0.343	pCi/g		0.262
TBG06-3057-02.0-045	9/15/2002	Uranium-238, Alpha	1.12	0.459	pCi/g		0.253
TBG06-3058-01.0-070	9/15/2002	Uranium-238, Alpha	0.767	0.34	pCi/g		0.229
TSG06-3055-015	9/15/2002	Uranium-238, Alpha	0.96	0.416	pCi/g		0.29
TSG06-3059-085	9/15/2002	Uranium-238, Alpha	0.855	0.393	pCi/g		0.293
TBG01-3000-06.0-050	9/11/2002	Uranium-238, Gamma	1.56	0.646	pCi/g		0.407
TBG01-3001-03.0-021	9/12/2002	Uranium-238, Gamma	1.53	0.566	pCi/g		0.319
TBG01-3002-02.0-025	9/11/2002	Uranium-238, Gamma	0.673	1.13	pCi/g	U	0.718
TBG01-3003-05.0-016	9/12/2002	Uranium-238, Gamma	0.795	0.744	pCi/g		0.651
TBG01-3004-02.0-000	9/13/2002	Uranium-238, Gamma	1.8	0.994	pCi/g		0.655
TBG01-3070-03.0-021	9/12/2002	Uranium-238, Gamma	2.94	3.59	pCi/g	U	3.97
TBG02-2857-02.0	5/22/2002	Uranium-238, Gamma	2.05	0.957	pCi/g		0.741
TBG02-2858-02.0	5/22/2002	Uranium-238, Gamma	1460	273	pCi/g		13.5
Average of 2857 and 2858			731.025				
TBG02-3015-04.5-001	9/16/2002	Uranium-238, Gamma	0.56	0.853	pCi/g	U	0.956
TBG02-3073-02.0-001	9/16/2002	Uranium-238, Gamma	0.877	1.05	pCi/g	U	1.18
TBG02-3076-02.0-001	9/16/2002	Uranium-238, Gamma	0.339	9.21	pCi/g	U	9.87
TBG03-3018-01.0-011	9/14/2002	Uranium-238, Gamma	0.615	1.2	pCi/g	U	1.12
TBG04-3025-01.0-010	9/13/2002	Uranium-238, Gamma	1.74	0.85	pCi/g		0.507
TBG04-3026-05.0-013	9/13/2002	Uranium-238, Gamma	2.01	1.41	pCi/g		0.947
TBG04-3027-04.0-027	9/13/2002	Uranium-238, Gamma	1.57	0.792	pCi/g		0.543
TBG04-3028-06.0-030	9/13/2002	Uranium-238, Gamma	0.707	0.712	pCi/g	U	1.24
TBG04-3029-04.0-040	9/13/2002	Uranium-238, Gamma	0.809	0.645	pCi/g		0.492
TBG05-3040-05.0-012	9/14/2002	Uranium-238, Gamma	3.08	0.859	pCi/g		0.411
TBG05-3041-10.0-014	9/14/2002	Uranium-238, Gamma	0.617	0.682	pCi/g		0.543
TBG05-3042-04.0-035	9/14/2002	Uranium-238, Gamma	1.12	1.04	pCi/g		0.776
TBG05-3043-03.0-045	9/14/2002	Uranium-238, Gamma	1.71	1.45	pCi/g		0.853
TBG05-3044-07.0-050	9/14/2002	Uranium-238, Gamma	1.01	1.06	pCi/g		0.717
TBG06-3056-02.0-035	9/15/2002	Uranium-238, Gamma	1.16	1.13	pCi/g		0.871
TBG06-3057-02.0-045	9/15/2002	Uranium-238, Gamma	1.31	0.688	pCi/g		0.512
TBG06-3058-01.0-070	9/15/2002	Uranium-238, Gamma	0.8	0.959	pCi/g	U	0.844
TSG06-3055-015	9/15/2002	Uranium-238, Gamma	2	0.693	pCi/g		0.369
TSG06-3059-085	9/15/2002	Uranium-238, Gamma	1.21	0.703	pCi/g		0.495

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG01-3000-06.0-050	9/11/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0759	0.17	pCi/g	U	0.3
TBG01-3001-03.0-021	9/12/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0835	0.144	pCi/g	U	0.224
TBG01-3002-02.0-025	9/11/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0958	0.155	pCi/g	U	0.282
TBG01-3003-05.0-016	9/12/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.00803	0.0918	pCi/g	U	0.158
TBG01-3070-03.0-021	9/12/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.574	0.567	pCi/g	U	0.807
TBG02-3015-04.5-001	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	0.191	0.226	pCi/g	U	0.358
TBG02-3073-02.0-001	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.295	0.283	pCi/g	U	0.431
TBG04-3029-04.0-040	9/13/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0447	0.102	pCi/g	U	0.183
TBG05-3040-05.0-012	9/14/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.122	0.162	pCi/g	U	0.272
TBG05-3043-03.0-045	9/14/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0608	0.118	pCi/g	U	0.199
TBG06-3056-02.0-035	9/15/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0527	0.112	pCi/g	U	0.192
TBG06-3057-02.0-045	9/15/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0106	0.104	pCi/g	U	0.188
TBG06-3058-01.0-070	9/15/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0192	0.11	pCi/g	U	0.189
TSG06-3055-015	9/15/2002	Actinium-227, Gamma	DOE EML HASL 300	0.126	0.146	pCi/g	U	0.259
TSG06-3059-085	9/15/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0362	0.103	pCi/g	U	0.185
TBG01-3004-02.0-000	9/13/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0858	0.154	pCi/g	U	0.251
TBG03-3018-01.0-011	9/14/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0376	0.17	pCi/g	U	0.265
TBG04-3025-01.0-010	9/13/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0567	0.209	pCi/g	U	0.369
TBG04-3026-05.0-013	9/13/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0508	0.16	pCi/g	U	0.275
TBG04-3027-04.0-027	9/13/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.106	0.225	pCi/g	U	0.38
TBG04-3028-06.0-030	9/13/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.145	0.178	pCi/g	U	0.259
TBG05-3041-10.0-014	9/14/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0193	0.111	pCi/g	U	0.198
TBG05-3042-04.0-035	9/14/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0199	0.101	pCi/g	U	0.178
TBG05-3044-07.0-050	9/14/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0117	0.145	pCi/g	U	0.265
ACG01-3008-01.0-006	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	-14.9	10.9	pCi/g	U	15.7
LDG01-3012-03.0-021	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0685	0.27	pCi/g	U	0.419
LDG01-3013-03.0-010	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.0182	0.0411	pCi/g	U	0.0644
LDG01-3014-03.0-015	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.00855	0.11	pCi/g	U	0.147
LDG04-3037-01.0-013	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	0.018	0.178	pCi/g	U	0.268
TBG03-3071-01.0-011	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	1100	733	pCi/g		1040
LDG02-3017-03.0-001	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	0.151	1.42	pCi/g	U	1.9
LDG02-9017-03.0-001	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	-0.132	0.445	pCi/g	U	0.602
TBG03-3074-01.0-011	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	4.86	5.94	pCi/g	U	7.86
TBG02-2857-02.0	5/22/2002	Actinium-227, Gamma	DOE EML HASL 300	0.0555	0.316	pCi/g	U	0.482
TBG02-2858-02.0	5/22/2002	Actinium-227, Gamma	DOE EML HASL 300	123	20	pCi/g		3.81
TBG02-3076-02.0-001	9/16/2002	Actinium-227, Gamma	DOE EML HASL 300	1.21	1.96	pCi/g	U	2.66

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG01-3000-06.0-050	9/11/2002	Americium-241, Gamma	DOE EML HASL 300	0.00228	0.0253	pCi/g	U	0.0426
TBG01-3001-03.0-021	9/12/2002	Americium-241, Gamma	DOE EML HASL 300	0.0209	0.0191	pCi/g	U	0.0333
TBG01-3002-02.0-025	9/11/2002	Americium-241, Gamma	DOE EML HASL 300	0.0316	0.0489	pCi/g	U	0.0834
TBG01-3003-05.0-016	9/12/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0393	0.0441	pCi/g	U	0.0832
TBG01-3070-03.0-021	9/12/2002	Americium-241, Gamma	DOE EML HASL 300	-0.00211	0.296	pCi/g	U	0.525
TBG02-3015-04.5-001	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0177	0.0608	pCi/g	U	0.112
TBG02-3073-02.0-001	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	-0.015	0.0744	pCi/g	U	0.138
TBG04-3029-04.0-040	9/13/2002	Americium-241, Gamma	DOE EML HASL 300	-0.00329	0.0332	pCi/g	U	0.0562
TBG05-3040-05.0-012	9/14/2002	Americium-241, Gamma	DOE EML HASL 300	0.0144	0.0245	pCi/g	U	0.0428
TBG05-3043-03.0-045	9/14/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0216	0.0576	pCi/g	U	0.108
TBG06-3056-02.0-035	9/15/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0719	0.0622	pCi/g	U	0.105
TBG06-3057-02.0-045	9/15/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0259	0.0317	pCi/g	U	0.0589
TBG06-3058-01.0-070	9/15/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0235	0.0544	pCi/g	U	0.103
TSG06-3055-015	9/15/2002	Americium-241, Gamma	DOE EML HASL 300	0.0125	0.0379	pCi/g	U	0.0391
TSG06-3059-085	9/15/2002	Americium-241, Gamma	DOE EML HASL 300	0.0136	0.033	pCi/g	U	0.0566
TBG01-3004-02.0-000	9/13/2002	Americium-241, Gamma	DOE EML HASL 300	0.0576	0.0447	pCi/g	U	0.0782
TBG03-3018-01.0-011	9/14/2002	Americium-241, Gamma	DOE EML HASL 300	0.0231	0.074	pCi/g	U	0.144
TBG04-3025-01.0-010	9/13/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0133	0.031	pCi/g	U	0.0531
TBG04-3026-05.0-013	9/13/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0127	0.0758	pCi/g	U	0.118
TBG04-3027-04.0-027	9/13/2002	Americium-241, Gamma	DOE EML HASL 300	0.0168	0.0326	pCi/g	U	0.0569
TBG04-3028-06.0-030	9/13/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0525	0.0851	pCi/g	U	0.143
TBG05-3041-10.0-014	9/14/2002	Americium-241, Gamma	DOE EML HASL 300	-0.00155	0.034	pCi/g	U	0.0626
TBG05-3042-04.0-035	9/14/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0214	0.0649	pCi/g	U	0.0912
TBG05-3044-07.0-050	9/14/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0202	0.0497	pCi/g	U	0.0834
ACG01-3008-01.0-006	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	0.965	1.59	pCi/g	U	2.28
LDG01-3012-03.0-021	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0826	0.102	pCi/g	U	0.144
LDG01-3013-03.0-010	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	0.00443	0.0192	pCi/g	U	0.0287
LDG01-3014-03.0-015	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	0.0427	0.0465	pCi/g	U	0.0623
LDG04-3037-01.0-013	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0748	0.09	pCi/g	U	0.116
TBG03-3071-01.0-011	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	-254	378	pCi/g	U	545
LDG02-3017-03.0-001	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	0.154	0.717	pCi/g	U	1.09
LDG02-9017-03.0-001	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	-0.0964	0.284	pCi/g	U	0.393
TBG03-3074-01.0-011	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	0.674	2.33	pCi/g	U	3.2
TBG02-2857-02.0	5/22/2002	Americium-241, Gamma	DOE EML HASL 300	0.0064	0.0593	pCi/g	U	0.0693
TBG02-2858-02.0	5/22/2002	Americium-241, Gamma	DOE EML HASL 300	0	1.04	pCi/g	UUI	1.67
TBG02-3076-02.0-001	9/16/2002	Americium-241, Gamma	DOE EML HASL 300	-0.132	0.911	pCi/g	U	1.23

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG01-3000-06.0-050	9/11/2002	Cesium-137, Gamma	DOE EML HASL 300	-0.00786	0.0187	pCi/g	U	0.0327
TBG01-3001-03.0-021	9/12/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0491	0.0227	pCi/g		0.027
TBG01-3002-02.0-025	9/11/2002	Cesium-137, Gamma	DOE EML HASL 300	0.167	0.0332	pCi/g		0.026
TBG01-3003-05.0-016	9/12/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0572	0.0155	pCi/g		0.0134
TBG01-3070-03.0-021	9/12/2002	Cesium-137, Gamma	DOE EML HASL 300	0.117	0.0581	pCi/g		0.0607
TBG02-3015-04.5-001	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0474	0.0238	pCi/g		0.0267
TBG02-3073-02.0-001	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0826	0.0337	pCi/g		0.0324
TBG04-3029-04.0-040	9/13/2002	Cesium-137, Gamma	DOE EML HASL 300	0.039	0.0162	pCi/g		0.0169
TBG05-3040-05.0-012	9/14/2002	Cesium-137, Gamma	DOE EML HASL 300	0.169	0.0376	pCi/g		0.0313
TBG05-3043-03.0-045	9/14/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0341	0.0173	pCi/g		0.0182
TBG06-3056-02.0-035	9/15/2002	Cesium-137, Gamma	DOE EML HASL 300	-0.00106	0.0101	pCi/g	U	0.0172
TBG06-3057-02.0-045	9/15/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0103	0.0113	pCi/g	U	0.018
TBG06-3058-01.0-070	9/15/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0845	0.0209	pCi/g		0.0169
TSG06-3055-015	9/15/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0133	0.0184	pCi/g	U	0.0288
TSG06-3059-085	9/15/2002	Cesium-137, Gamma	DOE EML HASL 300	0.17	0.0272	pCi/g		0.017
TBG01-3004-02.0-000	9/13/2002	Cesium-137, Gamma	DOE EML HASL 300	-0.000283	0.0132	pCi/g	U	0.0233
TBG03-3018-01.0-011	9/14/2002	Cesium-137, Gamma	DOE EML HASL 300	0.095	0.0238	pCi/g		0.0212
TBG04-3025-01.0-010	9/13/2002	Cesium-137, Gamma	DOE EML HASL 300	-0.008	0.025	pCi/g	U	0.0426
TBG04-3026-05.0-013	9/13/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0278	0.0279	pCi/g	U	0.0322
TBG04-3027-04.0-027	9/13/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0497	0.0376	pCi/g		0.045
TBG04-3028-06.0-030	9/13/2002	Cesium-137, Gamma	DOE EML HASL 300	0.00254	0.0147	pCi/g	U	0.0254
TBG05-3041-10.0-014	9/14/2002	Cesium-137, Gamma	DOE EML HASL 300	0.00356	0.0138	pCi/g	U	0.0175
TBG05-3042-04.0-035	9/14/2002	Cesium-137, Gamma	DOE EML HASL 300	0.00196	0.00889	pCi/g	U	0.0156
TBG05-3044-07.0-050	9/14/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0162	0.0215	pCi/g	U	0.0263
ACG01-3008-01.0-006	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	-0.046	1.27	pCi/g	U	2.08
LDG01-3012-03.0-021	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0	0.0543	pCi/g	UUI	0.0749
LDG01-3013-03.0-010	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	-0.00288	0.0037	pCi/g	U	0.0059
LDG01-3014-03.0-015	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	-0.000105	0.01	pCi/g	U	0.0138
LDG04-3037-01.0-013	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0.00352	0.015	pCi/g	U	0.0246
TBG03-3071-01.0-011	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	-6.12	58.5	pCi/g	U	81.1
LDG02-3017-03.0-001	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0376	0.0945	pCi/g	U	0.131
LDG02-9017-03.0-001	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0.0284	0.0318	pCi/g	U	0.0451
TBG03-3074-01.0-011	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0	0.588	pCi/g	UUI	0.766
TBG02-2857-02.0	5/22/2002	Cesium-137, Gamma	DOE EML HASL 300	0.069	0.0446	pCi/g		0.0407
TBG02-2858-02.0	5/22/2002	Cesium-137, Gamma	DOE EML HASL 300	0.493	0.23	pCi/g		0.296
TBG02-3076-02.0-001	9/16/2002	Cesium-137, Gamma	DOE EML HASL 300	0.164	0.152	pCi/g	U	0.225

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG01-3000-06.0-050	9/11/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00146	0.0259	pCi/g	U	0.04
TBG01-3001-03.0-021	9/12/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.000494	0.0156	pCi/g	U	0.0264
TBG01-3002-02.0-025	9/11/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.000443	0.0144	pCi/g	U	0.0254
TBG01-3003-05.0-016	9/12/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.000195	0.00868	pCi/g	U	0.0147
TBG01-3070-03.0-021	9/12/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00902	0.0426	pCi/g	U	0.0732
TBG02-3015-04.5-001	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00398	0.0192	pCi/g	U	0.0326
TBG02-3073-02.0-001	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00263	0.0231	pCi/g	U	0.0391
TBG04-3029-04.0-040	9/13/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00171	0.0106	pCi/g	U	0.0182
TBG05-3040-05.0-012	9/14/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.0138	0.0285	pCi/g	U	0.0315
TBG05-3043-03.0-045	9/14/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00412	0.0113	pCi/g	U	0.0195
TBG06-3056-02.0-035	9/15/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.0135	0.0107	pCi/g	U	0.0168
TBG06-3057-02.0-045	9/15/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00931	0.0108	pCi/g	U	0.0177
TBG06-3058-01.0-070	9/15/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.0113	0.00954	pCi/g	U	0.0193
TSG06-3055-015	9/15/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00146	0.0166	pCi/g	U	0.0284
TSG06-3059-085	9/15/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00312	0.0104	pCi/g	U	0.0183
TBG01-3004-02.0-000	9/13/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00795	0.0139	pCi/g	U	0.0251
TBG03-3018-01.0-011	9/14/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.011	0.0143	pCi/g	U	0.0231
TBG04-3025-01.0-010	9/13/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.0136	0.0254	pCi/g	U	0.042
TBG04-3026-05.0-013	9/13/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00389	0.0167	pCi/g	U	0.0293
TBG04-3027-04.0-027	9/13/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.0229	0.0278	pCi/g	U	0.0446
TBG04-3028-06.0-030	9/13/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.0056	0.015	pCi/g	U	0.0251
TBG05-3041-10.0-014	9/14/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00659	0.0121	pCi/g	U	0.0201
TBG05-3042-04.0-035	9/14/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00413	0.00943	pCi/g	U	0.0157
TBG05-3044-07.0-050	9/14/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00582	0.0151	pCi/g	U	0.0257
ACG01-3008-01.0-006	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.509	1.5	pCi/g	U	2.62
LDG01-3012-03.0-021	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.0137	0.0285	pCi/g	U	0.0492
LDG01-3013-03.0-010	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00265	0.00431	pCi/g	U	0.00697
LDG01-3014-03.0-015	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00821	0.00914	pCi/g	U	0.0165
LDG04-3037-01.0-013	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.00187	0.0155	pCi/g	U	0.027
TBG03-3071-01.0-011	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	-50.3	61.8	pCi/g	U	99.9
LDG02-3017-03.0-001	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.0841	0.1	pCi/g	U	0.161
LDG02-9017-03.0-001	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.00501	0.0357	pCi/g	U	0.0584
TBG03-3074-01.0-011	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.646	0.728	pCi/g	U	1.12
TBG02-2857-02.0	5/22/2002	Cobalt-60, Gamma	DOE EML HASL 300	-0.0469	0.031	pCi/g	U	0.0498
TBG02-2858-02.0	5/22/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.0714	0.4	pCi/g	U	0.384
TBG02-3076-02.0-001	9/16/2002	Cobalt-60, Gamma	DOE EML HASL 300	0.0864	0.164	pCi/g	U	0.281

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG01-3000-06.0-050	9/11/2002	Plutonium-238, Alpha	DOE EML HASL 300	0	2	pCi/g	U	0.116
TBG01-3001-03.0-021	9/12/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0198	0.0282	pCi/g	U	0.257
TBG01-3002-02.0-025	9/11/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0163	0.0232	pCi/g	U	0.211
TBG01-3003-05.0-016	9/12/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0362	0.104	pCi/g	U	0.263
TBG01-3070-03.0-021	9/12/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0231	0.0269	pCi/g	U	0.223
TBG02-3015-04.5-001	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.145	0.176	pCi/g	U	0.332
TBG02-3073-02.0-001	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0323	0.18	pCi/g	U	0.452
TBG04-3029-04.0-040	9/13/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0682	0.219	pCi/g	U	0.51
TBG05-3040-05.0-012	9/14/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.038	0.178	pCi/g	U	0.434
TBG05-3043-03.0-045	9/14/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0923	0.151	pCi/g	U	0.309
TBG06-3056-02.0-035	9/15/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0364	0.141	pCi/g	U	0.354
TBG06-3057-02.0-045	9/15/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.151	0.233	pCi/g	U	0.478
TBG06-3058-01.0-070	9/15/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0544	0.221	pCi/g	U	0.531
TSG06-3055-015	9/15/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.00555	0.154	pCi/g	U	0.421
TSG06-3059-085	9/15/2002	Plutonium-238, Alpha	DOE EML HASL 300	1.43E-07	0.181	pCi/g	U	0.478
TBG01-3004-02.0-000	9/13/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0147	0.0208	pCi/g	U	0.19
TBG03-3018-01.0-011	9/14/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0594	0.0456	pCi/g	U	0.319
TBG04-3025-01.0-010	9/13/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0262	0.071	pCi/g	U	0.182
TBG04-3026-05.0-013	9/13/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0177	0.0251	pCi/g	U	0.229
TBG04-3027-04.0-027	9/13/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0125	0.0508	pCi/g	U	0.15
TBG04-3028-06.0-030	9/13/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0271	0.0315	pCi/g	U	0.261
TBG05-3041-10.0-014	9/14/2002	Plutonium-238, Alpha	DOE EML HASL 300	0	2	pCi/g	U	0.0947
TBG05-3042-04.0-035	9/14/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.00716	0.0143	pCi/g	U	0.157
TBG05-3044-07.0-050	9/14/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.00879	0.0176	pCi/g	U	0.193
ACG01-3008-01.0-006	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0223	0.0317	pCi/g	U	0.17
LDG01-3012-03.0-021	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0216	0.0434	pCi/g	U	0.0909
LDG01-3013-03.0-010	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0173	0.085	pCi/g	U	0.171
LDG01-3014-03.0-015	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	0	2	pCi/g	U	0.0382
LDG04-3037-01.0-013	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0174	0.0307	pCi/g	U	0.0777
TBG03-3071-01.0-011	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	1.79	99.1	pCi/g	U	338
TBG02-3072-02.0	5/22/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.0139	0.0198	pCi/g	U	0.0667
LDG02-3017-03.0-001	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.000366	0.0637	pCi/g	U	0.176
LDG02-9017-03.0-001	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.00667	0.0133	pCi/g	U	0.051
TBG03-3074-01.0-011	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	-0.00876	0.0717	pCi/g	U	0.192
TBG02-2857-02.0	5/22/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0181	0.0828	pCi/g	U	0.15
TBG02-2858-02.0	5/22/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.111	0.198	pCi/g	U	0.424

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG02-3076-02.0-001	9/16/2002	Plutonium-238, Alpha	DOE EML HASL 300	0.0438	0.0947	pCi/g	U	0.166
TBG01-3000-06.0-050	9/11/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0186	0.0264	pCi/g	U	0.241
TBG01-3001-03.0-021	9/12/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0214	0.0871	pCi/g	U	0.257
TBG01-3002-02.0-025	9/11/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.00951	0.0736	pCi/g	U	0.236
TBG01-3003-05.0-016	9/12/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.00139	0.0771	pCi/g	U	0.263
TBG01-3070-03.0-021	9/12/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.498	0.267	pCi/g		0.2
TBG02-3015-04.5-001	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.409	0.239	pCi/g		0.24
TBG02-3073-02.0-001	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.481	0.28	pCi/g		0.303
TBG04-3029-04.0-040	9/13/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.00668	0.0758	pCi/g	U	0.27
TBG05-3040-05.0-012	9/14/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0515	0.0395	pCi/g	U	0.276
TBG05-3043-03.0-045	9/14/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0159	0.0836	pCi/g	U	0.309
TBG06-3056-02.0-035	9/15/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0338	0.0971	pCi/g	U	0.245
TBG06-3057-02.0-045	9/15/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0398	0.0402	pCi/g	U	0.313
TBG06-3058-01.0-070	9/15/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0243	0.0848	pCi/g	U	0.323
TSG06-3055-015	9/15/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.05	0.0414	pCi/g	U	0.298
TSG06-3059-085	9/15/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0319	0.0322	pCi/g	U	0.251
TBG01-3004-02.0-000	9/13/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.00855	0.0662	pCi/g	U	0.212
TBG03-3018-01.0-011	9/14/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.00424	0.137	pCi/g	U	0.396
TBG04-3025-01.0-010	9/13/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0895	0.0948	pCi/g	U	0.407
TBG04-3026-05.0-013	9/13/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0294	0.111	pCi/g	U	0.297
TBG04-3027-04.0-027	9/13/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0106	0.0557	pCi/g	U	0.206
TBG04-3028-06.0-030	9/13/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0195	0.0794	pCi/g	U	0.234
TBG05-3041-10.0-014	9/14/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.143	0.0981	pCi/g	U	0.439
TBG05-3042-04.0-035	9/14/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0536	0.108	pCi/g	U	0.241
TBG05-3044-07.0-050	9/14/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0219	0.144	pCi/g	U	0.432
ACG01-3008-01.0-006	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	8.08	1.21	pCi/g		0.212
LDG01-3012-03.0-021	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.00856	0.107	pCi/g	U	0.25
LDG01-3013-03.0-010	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0173	0.0489	pCi/g	U	0.0955
LDG01-3014-03.0-015	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	1.34	0.299	pCi/g		0.111
LDG04-3037-01.0-013	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0231	0.0284	pCi/g	U	0.0442
TBG03-3071-01.0-011	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-41	108	pCi/g	U	421
TBG02-3072-02.0	5/22/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	-0.0208	0.0693	pCi/g	U	0.141
LDG02-3017-03.0-001	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	2.23	0.466	pCi/g		0.175
LDG02-9017-03.0-001	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	4.25	0.528	pCi/g		0.0734
TBG03-3074-01.0-011	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.0567	0.0883	pCi/g	U	0.17
TBG02-2857-02.0	5/22/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	17.6	1.82	pCi/g		0.0663

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG02-2858-02.0	5/22/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	0.131	0.141	pCi/g	U	0.184
TBG02-3076-02.0-001	9/16/2002	Plutonium-239/240, Alpha	DOE EML HASL 300	2.42	0.357	pCi/g		0.0975
TBG02-3015-04.5-001	9/16/2002	Potassium-40, Gamma	DOE EML HASL 300	18.2	2.12	pCi/g		0.315
TBG02-3073-02.0-001	9/16/2002	Potassium-40, Gamma	DOE EML HASL 300	18.6	2.17	pCi/g		0.384
TBG04-3029-04.0-040	9/13/2002	Potassium-40, Gamma	DOE EML HASL 300	18	2.04	pCi/g		0.145
TBG05-3040-05.0-012	9/14/2002	Potassium-40, Gamma	DOE EML HASL 300	15.7	1.71	pCi/g		0.271
TBG05-3043-03.0-045	9/14/2002	Potassium-40, Gamma	DOE EML HASL 300	19.9	2.27	pCi/g		0.16
TBG06-3056-02.0-035	9/15/2002	Potassium-40, Gamma	DOE EML HASL 300	22.7	2.58	pCi/g		0.144
TBG06-3057-02.0-045	9/15/2002	Potassium-40, Gamma	DOE EML HASL 300	19.1	2.17	pCi/g		0.154
TBG06-3058-01.0-070	9/15/2002	Potassium-40, Gamma	DOE EML HASL 300	18.4	2.11	pCi/g		0.149
TSG06-3055-015	9/15/2002	Potassium-40, Gamma	DOE EML HASL 300	17.4	1.86	pCi/g		0.25
TSG06-3059-085	9/15/2002	Potassium-40, Gamma	DOE EML HASL 300	17.5	1.98	pCi/g		0.15
TBG01-3004-02.0-000	9/13/2002	Potassium-40, Gamma	DOE EML HASL 300	18.7	2.16	pCi/g		0.195
TBG03-3018-01.0-011	9/14/2002	Potassium-40, Gamma	DOE EML HASL 300	15.8	1.85	pCi/g		0.216
TBG04-3025-01.0-010	9/13/2002	Potassium-40, Gamma	DOE EML HASL 300	12.1	1.48	pCi/g		0.367
TBG04-3026-05.0-013	9/13/2002	Potassium-40, Gamma	DOE EML HASL 300	13.4	1.5	pCi/g		0.251
TBG04-3027-04.0-027	9/13/2002	Potassium-40, Gamma	DOE EML HASL 300	12.8	1.56	pCi/g		0.418
TBG04-3028-06.0-030	9/13/2002	Potassium-40, Gamma	DOE EML HASL 300	20.1	2.35	pCi/g		0.219
TBG05-3041-10.0-014	9/14/2002	Potassium-40, Gamma	DOE EML HASL 300	21.6	2.44	pCi/g		0.157
TBG05-3044-07.0-050	9/14/2002	Potassium-40, Gamma	DOE EML HASL 300	19.9	2.32	pCi/g		0.215
TBG01-3000-06.0-050	9/11/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.664	0.658	pCi/g	U	1.22
TBG01-3001-03.0-021	9/12/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.312	0.518	pCi/g	U	0.892
TBG01-3002-02.0-025	9/11/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.251	0.602	pCi/g	U	1.06
TBG01-3003-05.0-016	9/12/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.0806	0.346	pCi/g	U	0.589
TBG01-3070-03.0-021	9/12/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.889	2	pCi/g	U	3.27
TBG02-3015-04.5-001	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.0243	0.806	pCi/g	U	1.42
TBG02-3073-02.0-001	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.737	0.99	pCi/g	U	1.72
TBG04-3029-04.0-040	9/13/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.171	0.394	pCi/g	U	0.714
TBG05-3040-05.0-012	9/14/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.224	0.637	pCi/g	U	1.08
TBG05-3043-03.0-045	9/14/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.194	0.46	pCi/g	U	0.789
TBG06-3056-02.0-035	9/15/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.0835	0.437	pCi/g	U	0.757
TBG06-3057-02.0-045	9/15/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.206	0.407	pCi/g	U	0.74
TBG06-3058-01.0-070	9/15/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.213	0.431	pCi/g	U	0.722
TSG06-3055-015	9/15/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.221	0.57	pCi/g	U	1
TSG06-3059-085	9/15/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.0752	0.4	pCi/g	U	0.721
TBG01-3004-02.0-000	9/13/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.151	0.545	pCi/g	U	0.988

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG03-3018-01.0-011	9/14/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.337	0.613	pCi/g	U	1.07
TBG04-3025-01.0-010	9/13/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.402	0.826	pCi/g	U	1.39
TBG04-3026-05.0-013	9/13/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.0633	0.627	pCi/g	U	1.08
TBG04-3027-04.0-027	9/13/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.305	0.887	pCi/g	U	1.54
TBG04-3028-06.0-030	9/13/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.00458	0.601	pCi/g	U	1.03
TBG05-3041-10.0-014	9/14/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.32	0.559	pCi/g	U	0.79
TBG05-3042-04.0-035	9/14/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.275	0.387	pCi/g	U	0.686
TBG05-3044-07.0-050	9/14/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.0315	0.581	pCi/g	U	1.05
ACG01-3008-01.0-006	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	4.47	42	pCi/g	U	65.6
LDG01-3012-03.0-021	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.463	1.05	pCi/g	U	1.66
LDG01-3013-03.0-010	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.0332	0.154	pCi/g	U	0.246
LDG01-3014-03.0-015	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.0764	0.356	pCi/g	U	0.572
LDG04-3037-01.0-013	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.348	0.7	pCi/g	U	1.07
TBG03-3071-01.0-011	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	-1110	3170	pCi/g	U	4160
LDG02-3017-03.0-001	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	2.6	5.57	pCi/g	U	7.43
LDG02-9017-03.0-001	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.453	1.75	pCi/g	U	2.37
TBG03-3074-01.0-011	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	-3.8	24.1	pCi/g	U	32
TBG02-2857-02.0	5/22/2002	Protactinium-231, Gamma	DOE EML HASL 300	0.72	1.13	pCi/g	U	1.91
TBG02-2858-02.0	5/22/2002	Protactinium-231, Gamma	DOE EML HASL 300	108	20.8	pCi/g		15
TBG02-3076-02.0-001	9/16/2002	Protactinium-231, Gamma	DOE EML HASL 300	-0.449	7.1	pCi/g	U	10.6
ACG01-3008-01.0-006	9/16/2002	Radium-226	EPA 903.1 Modified	17.1	1.88	pCi/g		0.739
LDG01-3012-03.0-021	9/16/2002	Radium-226	EPA 903.1 Modified	0.268	0.194	pCi/g	U	0.271
LDG01-3013-03.0-010	9/16/2002	Radium-226	EPA 903.1 Modified	0.619	0.247	pCi/g		0.23
LDG01-3014-03.0-015	9/16/2002	Radium-226	EPA 903.1 Modified	2.34	0.468	pCi/g		0.309
LDG04-3037-01.0-013	9/16/2002	Radium-226	EPA 903.1 Modified	0.222	0.204	pCi/g	U	0.314
TBG03-3071-01.0-011	9/16/2002	Radium-226	EPA 903.1 Modified	4.85E+05	18700	pCi/g		2650
LDG02-3017-03.0-001	9/16/2002	Radium-226	EPA 903.1 Modified	293	13.2	pCi/g		2.17
LDG02-9017-03.0-001	9/16/2002	Radium-226	EPA 903.1 Modified	102	2.89	pCi/g		0.156
TBG03-3074-01.0-011	9/16/2002	Radium-226	EPA 903.1 Modified	3430	75.3	pCi/g		4.63
TBG02-3076-02.0-001	9/16/2002	Radium-226	EPA 903.1 Modified	15	0.851	pCi/g		0.176
TBG01-3000-06.0-050	9/11/2002	Radium-226, Gamma	DOE EML HASL 300	0.758	0.135	pCi/g		0.059
TBG01-3001-03.0-021	9/12/2002	Radium-226, Gamma	DOE EML HASL 300	0.962	0.146	pCi/g		0.0443
TBG01-3002-02.0-025	9/11/2002	Radium-226, Gamma	DOE EML HASL 300	0.608	0.101	pCi/g		0.0506
TBG01-3003-05.0-016	9/12/2002	Radium-226, Gamma	DOE EML HASL 300	0.94	0.123	pCi/g		0.0259
TBG01-3070-03.0-021	9/12/2002	Radium-226, Gamma	DOE EML HASL 300	25.8	2.83	pCi/g		0.118
TBG02-3015-04.5-001	9/16/2002	Radium-226, Gamma	DOE EML HASL 300	10.4	1.29	pCi/g		0.052

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TBG02-3073-02.0-001	9/16/2002	Radium-226, Gamma	DOE EML HASL 300	17.7	2.2	pCi/g		0.0608
TBG04-3029-04.0-040	9/13/2002	Radium-226, Gamma	DOE EML HASL 300	0.705	0.102	pCi/g		0.0309
TBG05-3040-05.0-012	9/14/2002	Radium-226, Gamma	DOE EML HASL 300	0.995	0.154	pCi/g		0.057
TBG05-3043-03.0-045	9/14/2002	Radium-226, Gamma	DOE EML HASL 300	0.794	0.113	pCi/g		0.0324
TBG06-3056-02.0-035	9/15/2002	Radium-226, Gamma	DOE EML HASL 300	0.816	0.113	pCi/g		0.0322
TBG06-3057-02.0-045	9/15/2002	Radium-226, Gamma	DOE EML HASL 300	0.796	0.111	pCi/g		0.0315
TBG06-3058-01.0-070	9/15/2002	Radium-226, Gamma	DOE EML HASL 300	0.747	0.107	pCi/g		0.0318
TSG06-3055-015	9/15/2002	Radium-226, Gamma	DOE EML HASL 300	0.781	0.131	pCi/g		0.052
TSG06-3059-085	9/15/2002	Radium-226, Gamma	DOE EML HASL 300	0.792	0.112	pCi/g		0.0324
TBG01-3004-02.0-000	9/13/2002	Radium-226, Gamma	DOE EML HASL 300	0.814	0.12	pCi/g		0.0404
TBG03-3018-01.0-011	9/14/2002	Radium-226, Gamma	DOE EML HASL 300	2.36	0.296	pCi/g		0.0432
TBG04-3025-01.0-010	9/13/2002	Radium-226, Gamma	DOE EML HASL 300	0.59	0.128	pCi/g		0.0756
TBG04-3026-05.0-013	9/13/2002	Radium-226, Gamma	DOE EML HASL 300	0.648	0.115	pCi/g		0.0492
TBG04-3027-04.0-027	9/13/2002	Radium-226, Gamma	DOE EML HASL 300	0.668	0.138	pCi/g		0.0781
TBG04-3028-06.0-030	9/13/2002	Radium-226, Gamma	DOE EML HASL 300	0.718	0.11	pCi/g		0.0472
TBG05-3041-10.0-014	9/14/2002	Radium-226, Gamma	DOE EML HASL 300	0.703	0.1	pCi/g		0.0326
TBG05-3042-04.0-035	9/14/2002	Radium-226, Gamma	DOE EML HASL 300	0.612	0.0909	pCi/g		0.0289
TBG05-3044-07.0-050	9/14/2002	Radium-226, Gamma	DOE EML HASL 300	0.689	0.107	pCi/g		0.0458
TBG03-3071-01.0-011	9/16/2002	Radium-226, Gamma	DOE EML HASL 300	74800	8420	pCi/g		149
LDG02-3017-03.0-001	9/16/2002	Radium-226, Gamma	DOE EML HASL 300	193	21	pCi/g		0.248
TBG03-3074-01.0-011	9/16/2002	Radium-226, Gamma	DOE EML HASL 300	1660	220	pCi/g		1.44
TBG02-2857-02.0	5/22/2002	Radium-226, Gamma	DOE EML HASL 300	34.5	4.22	pCi/g		0.0753
TBG02-2858-02.0	5/22/2002	Radium-226, Gamma	DOE EML HASL 300	1980	236	pCi/g		0.556
TBG01-3000-06.0-050	9/11/2002	Radium-228, Gamma	DOE EML HASL 300	0.976	0.203	pCi/g		0.127
TBG01-3001-03.0-021	9/12/2002	Radium-228, Gamma	DOE EML HASL 300	1.01	0.176	pCi/g		0.0857
TBG01-3002-02.0-025	9/11/2002	Radium-228, Gamma	DOE EML HASL 300	0.638	0.156	pCi/g		0.0918
TBG01-3003-05.0-016	9/12/2002	Radium-228, Gamma	DOE EML HASL 300	0.853	0.157	pCi/g		0.0498
TBG01-3070-03.0-021	9/12/2002	Radium-228, Gamma	DOE EML HASL 300	0.713	0.272	pCi/g		0.253
TBG02-3015-04.5-001	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.898	0.192	pCi/g		0.109
TBG02-3073-02.0-001	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.828	0.189	pCi/g		0.132
TBG04-3029-04.0-040	9/13/2002	Radium-228, Gamma	DOE EML HASL 300	0.872	0.166	pCi/g		0.0615
TBG05-3040-05.0-012	9/14/2002	Radium-228, Gamma	DOE EML HASL 300	0.893	0.178	pCi/g		0.11
TBG05-3043-03.0-045	9/14/2002	Radium-228, Gamma	DOE EML HASL 300	1.06	0.188	pCi/g		0.0617
TBG06-3056-02.0-035	9/15/2002	Radium-228, Gamma	DOE EML HASL 300	1.07	0.196	pCi/g		0.0623
TBG06-3057-02.0-045	9/15/2002	Radium-228, Gamma	DOE EML HASL 300	1	0.189	pCi/g		0.0603
TBG06-3058-01.0-070	9/15/2002	Radium-228, Gamma	DOE EML HASL 300	0.915	0.169	pCi/g		0.0609

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Radium-228, Gamma	DOE EML HASL 300	0.96	0.18	pCi/g		0.103
TSG06-3059-085	9/15/2002	Radium-228, Gamma	DOE EML HASL 300	0.89	0.174	pCi/g		0.0602
TBG01-3004-02.0-000	9/13/2002	Radium-228, Gamma	DOE EML HASL 300	1.1	0.218	pCi/g		0.0817
TBG03-3018-01.0-011	9/14/2002	Radium-228, Gamma	DOE EML HASL 300	0.785	0.177	pCi/g		0.0795
TBG04-3025-01.0-010	9/13/2002	Radium-228, Gamma	DOE EML HASL 300	0.717	0.187	pCi/g		0.138
TBG04-3026-05.0-013	9/13/2002	Radium-228, Gamma	DOE EML HASL 300	0.706	0.151	pCi/g		0.0996
TBG04-3027-04.0-027	9/13/2002	Radium-228, Gamma	DOE EML HASL 300	0.68	0.201	pCi/g		0.168
TBG04-3028-06.0-030	9/13/2002	Radium-228, Gamma	DOE EML HASL 300	0.869	0.197	pCi/g		0.0895
TBG05-3041-10.0-014	9/14/2002	Radium-228, Gamma	DOE EML HASL 300	1.02	0.193	pCi/g		0.0663
TBG05-3042-04.0-035	9/14/2002	Radium-228, Gamma	DOE EML HASL 300	0.791	0.147	pCi/g		0.0546
TBG05-3044-07.0-050	9/14/2002	Radium-228, Gamma	DOE EML HASL 300	0.887	0.188	pCi/g		0.0828
ACG01-3008-01.0-006	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	5.25	5.12	pCi/g	U	8.73
LDG01-3012-03.0-021	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.0946	0.205	pCi/g	U	0.185
LDG01-3013-03.0-010	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.0135	0.0293	pCi/g	U	0.029
LDG01-3014-03.0-015	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.137	0.0676	pCi/g		0.0494
LDG04-3037-01.0-013	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.0753	0.0616	pCi/g	U	0.105
TBG03-3071-01.0-011	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	156	226	pCi/g	U	357
LDG02-3017-03.0-001	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.113	0.362	pCi/g	U	0.566
LDG02-9017-03.0-001	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.164	0.127	pCi/g	U	0.2
TBG03-3074-01.0-011	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.326	2.24	pCi/g	U	3.52
TBG02-2857-02.0	5/22/2002	Radium-228, Gamma	DOE EML HASL 300	0.862	0.21	pCi/g		0.177
TBG02-2858-02.0	5/22/2002	Radium-228, Gamma	DOE EML HASL 300	-1.37	0.939	pCi/g	U	1.3
TBG02-3076-02.0-001	9/16/2002	Radium-228, Gamma	DOE EML HASL 300	0.125	0.617	pCi/g	U	0.979
TBG01-3000-06.0-050	9/11/2002	Strontium-90	EPA 905.0 Modified	0.00579	0.17	pCi/g	U	0.43
TBG01-3001-03.0-021	9/12/2002	Strontium-90	EPA 905.0 Modified	-0.0771	0.188	pCi/g	U	0.519
TBG01-3002-02.0-025	9/11/2002	Strontium-90	EPA 905.0 Modified	-0.0977	0.196	pCi/g	U	0.532
TBG01-3003-05.0-016	9/12/2002	Strontium-90	EPA 905.0 Modified	0.257	0.239	pCi/g	U	0.483
TBG01-3070-03.0-021	9/12/2002	Strontium-90	EPA 905.0 Modified	27.1	1.55	pCi/g		0.514
TBG02-3015-04.5-001	9/16/2002	Strontium-90	EPA 905.0 Modified	1.37	0.539	pCi/g		0.992
TBG02-3073-02.0-001	9/16/2002	Strontium-90	EPA 905.0 Modified	1.62	0.69	pCi/g		1.25
TBG04-3029-04.0-040	9/13/2002	Strontium-90	EPA 905.0 Modified	-0.455	0.419	pCi/g	U	1.16
TBG05-3040-05.0-012	9/14/2002	Strontium-90	EPA 905.0 Modified	-0.0107	0.38	pCi/g	U	0.932
TBG05-3043-03.0-045	9/14/2002	Strontium-90	EPA 905.0 Modified	0.103	0.49	pCi/g	U	1.15
TBG06-3056-02.0-035	9/15/2002	Strontium-90	EPA 905.0 Modified	-0.0413	0.344	pCi/g	U	0.849
TBG06-3057-02.0-045	9/15/2002	Strontium-90	EPA 905.0 Modified	0.307	0.482	pCi/g	U	1.08
TBG06-3058-01.0-070	9/15/2002	Strontium-90	EPA 905.0 Modified	0.0153	0.322	pCi/g	U	0.778

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Strontium-90	EPA 905.0 Modified	0.0726	0.465	pCi/g	U	1.1
TSG06-3059-085	9/15/2002	Strontium-90	EPA 905.0 Modified	0.453	0.401	pCi/g	U	0.836
TBG01-3004-02.0-000	9/13/2002	Strontium-90	EPA 905.0 Modified	0.198	0.457	pCi/g	U	1.05
TBG03-3018-01.0-011	9/14/2002	Strontium-90	EPA 905.0 Modified	0.525	0.446	pCi/g	U	0.931
TBG04-3025-01.0-010	9/13/2002	Strontium-90	EPA 905.0 Modified	-0.0165	0.519	pCi/g	U	1.25
TBG04-3026-05.0-013	9/13/2002	Strontium-90	EPA 905.0 Modified	-0.246	0.488	pCi/g	U	1.23
TBG04-3027-04.0-027	9/13/2002	Strontium-90	EPA 905.0 Modified	0.176	0.462	pCi/g	U	1.06
TBG04-3028-06.0-030	9/13/2002	Strontium-90	EPA 905.0 Modified	-0.0866	0.431	pCi/g	U	1.07
TBG05-3041-10.0-014	9/14/2002	Strontium-90	EPA 905.0 Modified	-0.065	0.386	pCi/g	U	0.954
TBG05-3042-04.0-035	9/14/2002	Strontium-90	EPA 905.0 Modified	0.128	0.405	pCi/g	U	0.944
TBG05-3044-07.0-050	9/14/2002	Strontium-90	EPA 905.0 Modified	0.27	0.369	pCi/g	U	0.814
ACG01-3008-01.0-006	9/16/2002	Strontium-90	EPA 905.0 Modified	306	5.71	pCi/g		0.89
LDG01-3012-03.0-021	9/16/2002	Strontium-90	EPA 905.0 Modified	2.21	0.392	pCi/g		0.473
LDG01-3013-03.0-010	9/16/2002	Strontium-90	EPA 905.0 Modified	0.225	0.206	pCi/g	U	0.407
LDG01-3014-03.0-015	9/16/2002	Strontium-90	EPA 905.0 Modified	0.576	0.264	pCi/g		0.447
LDG04-3037-01.0-013	9/16/2002	Strontium-90	EPA 905.0 Modified	0.253	0.237	pCi/g	U	0.476
TBG03-3071-01.0-011	9/16/2002	Strontium-90	EPA 905.0 Modified	225	4.63	pCi/g		0.771
LDG02-3017-03.0-001	9/16/2002	Strontium-90	EPA 905.0 Modified	4.48	0.586	pCi/g		0.69
LDG02-9017-03.0-001	9/16/2002	Strontium-90	EPA 905.0 Modified	1.41	0.379	pCi/g		0.529
TBG03-3074-01.0-011	9/16/2002	Strontium-90	EPA 905.0 Modified	2.9	0.67	pCi/g		1.04
TBG02-2857-02.0	5/22/2002	Strontium-90	EPA 905.0 Modified	10.3	0.815	pCi/g		0.483
TBG02-2858-02.0	5/22/2002	Strontium-90	EPA 905.0 Modified	8.56	0.692	pCi/g		0.43
TBG02-3076-02.0-001	9/16/2002	Strontium-90	EPA 905.0 Modified	2.82	0.466	pCi/g		0.525
TBG01-3000-06.0-050	9/11/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.29	0.436	pCi/g		0.439
TBG01-3001-03.0-021	9/12/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.863	0.282	pCi/g		0.237
TBG01-3002-02.0-025	9/11/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.847	0.397	pCi/g		0.499
TBG01-3003-05.0-016	9/12/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.731	0.283	pCi/g		0.299
TBG01-3070-03.0-021	9/12/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.327	0.28	pCi/g	U	0.472
TBG02-3015-04.5-001	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.969	0.305	pCi/g		0.277
TBG02-3073-02.0-001	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.776	0.435	pCi/g		0.517
TBG04-3029-04.0-040	9/13/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.08	0.453	pCi/g		0.509
TBG05-3040-05.0-012	9/14/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.696	0.375	pCi/g		0.54
TBG05-3043-03.0-045	9/14/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.4	0.498	pCi/g		0.474
TBG06-3056-02.0-035	9/15/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.33	0.641	pCi/g		0.478
TBG06-3057-02.0-045	9/15/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.12	0.65	pCi/g		0.749
TBG06-3058-01.0-070	9/15/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.1	0.587	pCi/g		0.608

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.763	0.496	pCi/g		0.575
TSG06-3059-085	9/15/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.689	0.398	pCi/g		0.493
TBG01-3004-02.0-000	9/13/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.798	0.341	pCi/g		0.416
TBG03-3018-01.0-011	9/14/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.04	0.38	pCi/g		0.366
TBG04-3025-01.0-010	9/13/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.688	0.363	pCi/g		0.42
TBG04-3026-05.0-013	9/13/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.966	0.393	pCi/g		0.436
TBG04-3027-04.0-027	9/13/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.2	0.461	pCi/g		0.453
TBG04-3028-06.0-030	9/13/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.39	0.545	pCi/g		0.504
TBG05-3041-10.0-014	9/14/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.04	0.425	pCi/g		0.494
TBG05-3042-04.0-035	9/14/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.01	0.462	pCi/g		0.515
TBG05-3044-07.0-050	9/14/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.638	0.391	pCi/g		0.582
ACG01-3008-01.0-006	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.139	0.419	pCi/g	U	1.15
LDG01-3012-03.0-021	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	-0.054	0.0851	pCi/g	U	0.228
LDG01-3013-03.0-010	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.148	0.152	pCi/g	U	0.249
LDG01-3014-03.0-015	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	-0.0387	0.344	pCi/g	U	0.474
LDG04-3037-01.0-013	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.00613	0.0459	pCi/g	U	0.461
TBG03-3071-01.0-011	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	2530	3720	pCi/g	U	8550
LDG02-3017-03.0-001	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	-0.0444	1.75	pCi/g	U	1.08
LDG02-9017-03.0-001	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.0275	0.081	pCi/g	U	0.252
TBG03-3074-01.0-011	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.704	0.747	pCi/g	U	1.43
TBG02-2857-02.0	5/22/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.737	0.436	pCi/g		0.544
TBG02-2858-02.0	5/22/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	1.66	4.76	pCi/g	U	14.3
TBG02-3076-02.0-001	9/16/2002	Thorium-228, Alpha	DOE EML HASL 300-AL	0.102	0.16	pCi/g	U	0.384
TBG01-3000-06.0-050	9/11/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.11	0.18	pCi/g		0.0426
TBG01-3001-03.0-021	9/12/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.986	0.142	pCi/g		0.0312
TBG01-3002-02.0-025	9/11/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.847	0.107	pCi/g		0.0385
TBG01-3003-05.0-016	9/12/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.941	0.106	pCi/g		0.0228
TBG01-3070-03.0-021	9/12/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.912	0.161	pCi/g		0.119
TBG02-3015-04.5-001	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.97	0.118	pCi/g		0.0525
TBG02-3073-02.0-001	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.903	0.116	pCi/g		0.0628
TBG04-3029-04.0-040	9/13/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.916	0.107	pCi/g		0.0261
TBG05-3040-05.0-012	9/14/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.87	0.129	pCi/g		0.0377
TBG05-3043-03.0-045	9/14/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.08	0.123	pCi/g		0.0289
TBG06-3056-02.0-035	9/15/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.28	0.145	pCi/g		0.0275
TBG06-3057-02.0-045	9/15/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.14	0.131	pCi/g		0.0268
TBG06-3058-01.0-070	9/15/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.03	0.117	pCi/g		0.027

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.05	0.153	pCi/g		0.0383
TSG06-3059-085	9/15/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.974	0.113	pCi/g		0.0261
TBG01-3004-02.0-000	9/13/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.16	0.137	pCi/g		0.0366
TBG03-3018-01.0-011	9/14/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.946	0.115	pCi/g		0.0395
TBG04-3025-01.0-010	9/13/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.781	0.124	pCi/g		0.0589
TBG04-3026-05.0-013	9/13/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.857	0.105	pCi/g		0.0377
TBG04-3027-04.0-027	9/13/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.824	0.131	pCi/g		0.0525
TBG04-3028-06.0-030	9/13/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.1	0.132	pCi/g		0.0395
TBG05-3041-10.0-014	9/14/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.1	0.127	pCi/g		0.03
TBG05-3042-04.0-035	9/14/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.96	0.111	pCi/g		0.0256
TBG05-3044-07.0-050	9/14/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.04	0.126	pCi/g		0.0385
ACG01-3008-01.0-006	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0	2.15	pCi/g	UUI	3.38
LDG01-3012-03.0-021	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0	0.0625	pCi/g	UUI	0.0885
LDG01-3013-03.0-010	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.0106	0.0122	pCi/g		0.00986
LDG01-3014-03.0-015	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.0764	0.0237	pCi/g		0.0235
LDG04-3037-01.0-013	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.00385	0.0752	pCi/g	U	0.0415
TBG03-3071-01.0-011	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	-0.822	165	pCi/g	U	172
LDG02-3017-03.0-001	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.11	0.235	pCi/g	U	0.316
LDG02-9017-03.0-001	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.13	0.0803	pCi/g		0.0953
TBG03-3074-01.0-011	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0	1.08	pCi/g	UUI	1.31
TBG02-2857-02.0	5/22/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	1.02	0.145	pCi/g		0.0869
TBG02-2858-02.0	5/22/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.0968	0.586	pCi/g	U	0.705
TBG02-3076-02.0-001	9/16/2002	Thorium-228, Gamma	DOE EML HASL 300-G/	0.175	0.445	pCi/g	U	0.41
TBG01-3000-06.0-050	9/11/2002	Thorium-230, Alpha	DOE EML HASL 300	1.33	0.391	pCi/g		0.149
TBG01-3001-03.0-021	9/12/2002	Thorium-230, Alpha	DOE EML HASL 300	0.765	0.242	pCi/g		0.116
TBG01-3002-02.0-025	9/11/2002	Thorium-230, Alpha	DOE EML HASL 300	1.45	0.463	pCi/g		0.208
TBG01-3003-05.0-016	9/12/2002	Thorium-230, Alpha	DOE EML HASL 300	0.862	0.278	pCi/g		0.143
TBG01-3070-03.0-021	9/12/2002	Thorium-230, Alpha	DOE EML HASL 300	1.09	0.377	pCi/g		0.205
TBG02-3015-04.5-001	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.973	0.282	pCi/g		0.152
TBG02-3073-02.0-001	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	1.03	0.466	pCi/g		0.267
TBG04-3029-04.0-040	9/13/2002	Thorium-230, Alpha	DOE EML HASL 300	1.02	0.374	pCi/g		0.178
TBG05-3040-05.0-012	9/14/2002	Thorium-230, Alpha	DOE EML HASL 300	1.55	0.472	pCi/g		0.157
TBG05-3043-03.0-045	9/14/2002	Thorium-230, Alpha	DOE EML HASL 300	1.53	0.483	pCi/g		0.243
TBG06-3056-02.0-035	9/15/2002	Thorium-230, Alpha	DOE EML HASL 300	1.25	0.592	pCi/g		0.273
TBG06-3057-02.0-045	9/15/2002	Thorium-230, Alpha	DOE EML HASL 300	1.69	0.771	pCi/g		0.387
TBG06-3058-01.0-070	9/15/2002	Thorium-230, Alpha	DOE EML HASL 300	1.27	0.591	pCi/g		0.137

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Thorium-230, Alpha	DOE EML HASL 300	0.98	0.528	pCi/g		0.262
TSG06-3059-085	9/15/2002	Thorium-230, Alpha	DOE EML HASL 300	0.942	0.427	pCi/g		0.213
TBG01-3004-02.0-000	9/13/2002	Thorium-230, Alpha	DOE EML HASL 300	0.896	0.32	pCi/g		0.275
TBG03-3018-01.0-011	9/14/2002	Thorium-230, Alpha	DOE EML HASL 300	1.16	0.401	pCi/g		0.371
TBG04-3025-01.0-010	9/13/2002	Thorium-230, Alpha	DOE EML HASL 300	1.01	0.408	pCi/g		0.236
TBG04-3026-05.0-013	9/13/2002	Thorium-230, Alpha	DOE EML HASL 300	1	0.351	pCi/g		0.222
TBG04-3027-04.0-027	9/13/2002	Thorium-230, Alpha	DOE EML HASL 300	1.5	0.48	pCi/g		0.189
TBG04-3028-06.0-030	9/13/2002	Thorium-230, Alpha	DOE EML HASL 300	1.12	0.435	pCi/g		0.287
TBG05-3041-10.0-014	9/14/2002	Thorium-230, Alpha	DOE EML HASL 300	1.35	0.428	pCi/g		0.16
TBG05-3042-04.0-035	9/14/2002	Thorium-230, Alpha	DOE EML HASL 300	1.42	0.5	pCi/g		0.082
TBG05-3044-07.0-050	9/14/2002	Thorium-230, Alpha	DOE EML HASL 300	1.04	0.395	pCi/g		0.269
ACG01-3008-01.0-006	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.223	0.242	pCi/g	U	0.428
LDG01-3012-03.0-021	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.268	0.156	pCi/g	X	0.158
LDG01-3013-03.0-010	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.144	0.14	pCi/g	U	0.228
LDG01-3014-03.0-015	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.581	0.276	pCi/g	X	0.209
LDG04-3037-01.0-013	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.242	0.194	pCi/g	U	0.272
TBG03-3071-01.0-011	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	45700	14800	pCi/g		3540
LDG02-3017-03.0-001	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.636	0.451	pCi/g		0.558
LDG02-9017-03.0-001	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.493	0.218	pCi/g	X	0.152
TBG03-3074-01.0-011	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	2.04	1.01	pCi/g		0.582
TBG02-2857-02.0	5/22/2002	Thorium-230, Alpha	DOE EML HASL 300	1.23	0.506	pCi/g	X	0.225
TBG02-2858-02.0	5/22/2002	Thorium-230, Alpha	DOE EML HASL 300	1040	311	pCi/g		8.1
TBG02-3076-02.0-001	9/16/2002	Thorium-230, Alpha	DOE EML HASL 300	0.188	0.157	pCi/g	U	0.198
TBG01-3000-06.0-050	9/11/2002	Thorium-232, Alpha	DOE EML HASL 300	0.899	0.305	pCi/g		0.178
TBG01-3001-03.0-021	9/12/2002	Thorium-232, Alpha	DOE EML HASL 300	0.638	0.216	pCi/g		0.102
TBG01-3002-02.0-025	9/11/2002	Thorium-232, Alpha	DOE EML HASL 300	0.659	0.28	pCi/g		0.189
TBG01-3003-05.0-016	9/12/2002	Thorium-232, Alpha	DOE EML HASL 300	0.55	0.205	pCi/g		0.0446
TBG01-3070-03.0-021	9/12/2002	Thorium-232, Alpha	DOE EML HASL 300	0.533	0.232	pCi/g		0.0592
TBG02-3015-04.5-001	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.665	0.218	pCi/g		0.118
TBG02-3073-02.0-001	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.647	0.349	pCi/g		0.246
TBG04-3029-04.0-040	9/13/2002	Thorium-232, Alpha	DOE EML HASL 300	0.822	0.325	pCi/g		0.146
TBG05-3040-05.0-012	9/14/2002	Thorium-232, Alpha	DOE EML HASL 300	0.603	0.254	pCi/g		0.129
TBG05-3043-03.0-045	9/14/2002	Thorium-232, Alpha	DOE EML HASL 300	0.855	0.325	pCi/g		0.168
TBG06-3056-02.0-035	9/15/2002	Thorium-232, Alpha	DOE EML HASL 300	0.9	0.477	pCi/g		0.273
TBG06-3057-02.0-045	9/15/2002	Thorium-232, Alpha	DOE EML HASL 300	0.936	0.523	pCi/g		0.355
TBG06-3058-01.0-070	9/15/2002	Thorium-232, Alpha	DOE EML HASL 300	0.743	0.438	pCi/g		0.411

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Thorium-232, Alpha	DOE EML HASL 300	0.621	0.402	pCi/g		0.309
TSG06-3059-085	9/15/2002	Thorium-232, Alpha	DOE EML HASL 300	0.386	0.256	pCi/g		0.238
TBG01-3004-02.0-000	9/13/2002	Thorium-232, Alpha	DOE EML HASL 300	0.604	0.238	pCi/g		0.159
TBG03-3018-01.0-011	9/14/2002	Thorium-232, Alpha	DOE EML HASL 300	0.542	0.23	pCi/g		0.144
TBG04-3025-01.0-010	9/13/2002	Thorium-232, Alpha	DOE EML HASL 300	0.609	0.293	pCi/g		0.171
TBG04-3026-05.0-013	9/13/2002	Thorium-232, Alpha	DOE EML HASL 300	0.856	0.314	pCi/g		0.192
TBG04-3027-04.0-027	9/13/2002	Thorium-232, Alpha	DOE EML HASL 300	0.667	0.286	pCi/g		0.209
TBG04-3028-06.0-030	9/13/2002	Thorium-232, Alpha	DOE EML HASL 300	1.03	0.406	pCi/g		0.21
TBG05-3041-10.0-014	9/14/2002	Thorium-232, Alpha	DOE EML HASL 300	0.771	0.298	pCi/g		0.16
TBG05-3042-04.0-035	9/14/2002	Thorium-232, Alpha	DOE EML HASL 300	0.56	0.28	pCi/g		0.172
TBG05-3044-07.0-050	9/14/2002	Thorium-232, Alpha	DOE EML HASL 300	0.873	0.346	pCi/g		0.186
ACG01-3008-01.0-006	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.0381	0.104	pCi/g	U	0.279
LDG01-3012-03.0-021	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.068	0.0746	pCi/g	U	0.0974
LDG01-3013-03.0-010	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.0415	0.0802	pCi/g	U	0.175
LDG01-3014-03.0-015	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.0324	0.0625	pCi/g	U	0.138
LDG04-3037-01.0-013	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.108	0.134	pCi/g	U	0.233
TBG03-3071-01.0-011	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	703	1160	pCi/g	U	2180
LDG02-3017-03.0-001	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.354	0.319	pCi/g	U	0.394
LDG02-9017-03.0-001	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.0592	0.0928	pCi/g	U	0.181
TBG03-3074-01.0-011	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	1.06	0.66	pCi/g		0.406
TBG02-2857-02.0	5/22/2002	Thorium-232, Alpha	DOE EML HASL 300	0.713	0.348	pCi/g		0.0893
TBG02-2858-02.0	5/22/2002	Thorium-232, Alpha	DOE EML HASL 300	5.23	4.39	pCi/g		5.02
TBG02-3076-02.0-001	9/16/2002	Thorium-232, Alpha	DOE EML HASL 300	0.0488	0.0806	pCi/g	U	0.15
TBG01-3000-06.0-050	9/11/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.976	0.377	pCi/g		0.248
TBG01-3001-03.0-021	9/12/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.844	0.365	pCi/g		0.255
TBG01-3002-02.0-025	9/11/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.486	0.347	pCi/g	U	0.579
TBG01-3003-05.0-016	9/12/2002	Uranium-233/234, Alpha	DOE EML HASL 300	1.14	0.455	pCi/g		0.287
TBG01-3070-03.0-021	9/12/2002	Uranium-233/234, Alpha	DOE EML HASL 300	1.51	0.455	pCi/g		0.25
TBG02-3015-04.5-001	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.95	0.365	pCi/g		0.316
TBG02-3073-02.0-001	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	1.24	0.464	pCi/g		0.333
TBG04-3029-04.0-040	9/13/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.451	0.285	pCi/g		0.381
TBG05-3040-05.0-012	9/14/2002	Uranium-233/234, Alpha	DOE EML HASL 300	3.2	1.94	pCi/g		1.81
TBG05-3043-03.0-045	9/14/2002	Uranium-233/234, Alpha	DOE EML HASL 300	1.21	0.495	pCi/g		0.374
TBG06-3056-02.0-035	9/15/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.765	0.352	pCi/g		0.262
TBG06-3057-02.0-045	9/15/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.703	0.371	pCi/g		0.367
TBG06-3058-01.0-070	9/15/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.359	0.258	pCi/g	U	0.37

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.576	0.32	pCi/g		0.29
TSG06-3059-085	9/15/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.855	0.393	pCi/g		0.293
TBG01-3004-02.0-000	9/13/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.754	0.349	pCi/g		0.192
TBG03-3018-01.0-011	9/14/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.851	0.362	pCi/g		0.267
TBG04-3025-01.0-010	9/13/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.472	0.28	pCi/g		0.273
TBG04-3026-05.0-013	9/13/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.967	0.401	pCi/g		0.246
TBG04-3027-04.0-027	9/13/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.595	0.282	pCi/g		0.232
TBG04-3028-06.0-030	9/13/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.554	0.297	pCi/g		0.261
TBG05-3041-10.0-014	9/14/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.872	0.365	pCi/g		0.263
TBG05-3042-04.0-035	9/14/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.588	0.31	pCi/g		0.251
TBG05-3044-07.0-050	9/14/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.765	0.331	pCi/g		0.273
ACG01-3008-01.0-006	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	18	3.06	pCi/g		0.382
LDG01-3012-03.0-021	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.471	0.252	pCi/g		0.26
LDG01-3013-03.0-010	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.3	0.184	pCi/g		0.225
LDG01-3014-03.0-015	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.687	0.303	pCi/g		0.24
LDG04-3037-01.0-013	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.0408	0.0782	pCi/g	U	0.167
TBG03-3071-01.0-011	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	24000	3890	pCi/g		513
LDG02-3017-03.0-001	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	1.59	0.45	pCi/g		0.276
LDG02-9017-03.0-001	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	0.415	0.247	pCi/g		0.241
TBG03-3074-01.0-011	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	1.09	0.34	pCi/g		0.209
TBG02-2857-02.0	5/22/2002	Uranium-233/234, Alpha	DOE EML HASL 300	1.9	0.488	pCi/g		0.183
TBG02-2858-02.0	5/22/2002	Uranium-233/234, Alpha	DOE EML HASL 300	722	113	pCi/g		6.76
TBG02-3076-02.0-001	9/16/2002	Uranium-233/234, Alpha	DOE EML HASL 300	2.69	0.663	pCi/g		0.21
TBG01-3000-06.0-050	9/11/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.00564	0.163	pCi/g	U	0.16
TBG01-3001-03.0-021	9/12/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0549	0.126	pCi/g	U	0.122
TBG01-3002-02.0-025	9/11/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.103	0.0913	pCi/g	U	0.162
TBG01-3003-05.0-016	9/12/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0472	0.0954	pCi/g	U	0.0935
TBG01-3070-03.0-021	9/12/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	-0.0525	0.278	pCi/g	U	0.473
TBG02-3015-04.5-001	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.104	0.121	pCi/g	U	0.209
TBG02-3073-02.0-001	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0796	0.191	pCi/g	U	0.252
TBG04-3029-04.0-040	9/13/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0899	0.103	pCi/g	U	0.109
TBG05-3040-05.0-012	9/14/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.102	0.141	pCi/g	U	0.157
TBG05-3043-03.0-045	9/14/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.127	0.13	pCi/g		0.124
TBG06-3056-02.0-035	9/15/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0246	0.0642	pCi/g	U	0.117
TBG06-3057-02.0-045	9/15/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.115	0.107	pCi/g		0.113
TBG06-3058-01.0-070	9/15/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0221	0.1	pCi/g	U	0.113

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.12	0.137	pCi/g	U	0.146
TSG06-3059-085	9/15/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.176	0.117	pCi/g		0.112
TBG01-3004-02.0-000	9/13/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0611	0.159	pCi/g	U	0.147
TBG03-3018-01.0-011	9/14/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.209	0.146	pCi/g		0.164
TBG04-3025-01.0-010	9/13/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0795	0.17	pCi/g	U	0.204
TBG04-3026-05.0-013	9/13/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0948	0.126	pCi/g	U	0.155
TBG04-3027-04.0-027	9/13/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0988	0.193	pCi/g	U	0.218
TBG04-3028-06.0-030	9/13/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	-0.037	0.0867	pCi/g	U	0.153
TBG05-3041-10.0-014	9/14/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0899	0.121	pCi/g	U	0.121
TBG05-3042-04.0-035	9/14/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0617	0.111	pCi/g	U	0.108
TBG05-3044-07.0-050	9/14/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0923	0.203	pCi/g	U	0.164
ACG01-3008-01.0-006	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	3.1	9.46	pCi/g	U	8.82
LDG01-3012-03.0-021	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.152	0.16	pCi/g	U	0.233
LDG01-3013-03.0-010	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.00465	0.0389	pCi/g	U	0.0312
LDG01-3014-03.0-015	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0565	0.0816	pCi/g	U	0.082
LDG04-3037-01.0-013	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.131	0.0993	pCi/g	U	0.15
TBG03-3071-01.0-011	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	1220	493	pCi/g		653
LDG02-3017-03.0-001	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	-0.176	0.736	pCi/g	U	1.11
LDG02-9017-03.0-001	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.171	0.229	pCi/g	U	0.349
TBG03-3074-01.0-011	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	-1.19	2.95	pCi/g	U	4.11
TBG02-2857-02.0	5/22/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.122	0.217	pCi/g	U	0.264
TBG02-2858-02.0	5/22/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	133	23.3	pCi/g		2.1
TBG02-3076-02.0-001	9/16/2002	Uranium-235, Gamma	DOE EML HASL 300-G/	0.0552	0.978	pCi/g	U	1.47
TBG01-3000-06.0-050	9/11/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.085	0.108	pCi/g	U	0.162
TBG01-3001-03.0-021	9/12/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.12	0.157	pCi/g	U	0.29
TBG01-3002-02.0-025	9/11/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0353	0.122	pCi/g	U	0.309
TBG01-3003-05.0-016	9/12/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0761	0.108	pCi/g	U	0.114
TBG01-3070-03.0-021	9/12/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0478	0.0964	pCi/g	U	0.215
TBG02-3015-04.5-001	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.131	0.125	pCi/g	U	0.145
TBG02-3073-02.0-001	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.00989	0.0765	pCi/g	U	0.245
TBG04-3029-04.0-040	9/13/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0424	0.0979	pCi/g	U	0.23
TBG05-3040-05.0-012	9/14/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0731	0.566	pCi/g	U	1.81
TBG05-3043-03.0-045	9/14/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.156	0.169	pCi/g	U	0.219
TBG06-3056-02.0-035	9/15/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.244	0.187	pCi/g		0.104
TBG06-3057-02.0-045	9/15/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0815	0.116	pCi/g	U	0.122
TBG06-3058-01.0-070	9/15/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.00132	0.0733	pCi/g	U	0.25

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.06	0.141	pCi/g	U	0.33
TSG06-3059-085	9/15/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.107	0.137	pCi/g	U	0.205
TBG01-3004-02.0-000	9/13/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	-0.00874	0.0175	pCi/g	U	0.192
TBG03-3018-01.0-011	9/14/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0185	0.101	pCi/g	U	0.284
TBG04-3025-01.0-010	9/13/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.029	0.11	pCi/g	U	0.294
TBG04-3026-05.0-013	9/13/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0811	0.127	pCi/g	U	0.247
TBG04-3027-04.0-027	9/13/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0517	0.104	pCi/g	U	0.232
TBG04-3028-06.0-030	9/13/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.183	0.174	pCi/g	U	0.241
TBG05-3041-10.0-014	9/14/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0901	0.115	pCi/g	U	0.172
TBG05-3042-04.0-035	9/14/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0638	0.104	pCi/g	U	0.191
TBG05-3044-07.0-050	9/14/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0849	0.126	pCi/g	U	0.245
ACG01-3008-01.0-006	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.615	0.345	pCi/g		0.236
LDG01-3012-03.0-021	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.00774	0.0599	pCi/g	U	0.192
LDG01-3013-03.0-010	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	-0.0266	0.024	pCi/g	U	0.179
LDG01-3014-03.0-015	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0157	0.086	pCi/g	U	0.241
LDG04-3037-01.0-013	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.00753	0.0583	pCi/g	U	0.187
TBG03-3071-01.0-011	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	2010	724	pCi/g		441
LDG02-3017-03.0-001	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.149	0.151	pCi/g	U	0.24
LDG02-9017-03.0-001	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	-0.0307	0.031	pCi/g	U	0.241
TBG03-3074-01.0-011	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.076	0.105	pCi/g	U	0.19
TBG02-2857-02.0	5/22/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.0454	0.0645	pCi/g	U	0.0681
TBG02-2858-02.0	5/22/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	55.6	15.2	pCi/g		2.25
TBG02-3076-02.0-001	9/16/2002	Uranium-235/236, Alpha	DOE EML HASL 300-AL	0.258	0.181	pCi/g		0.193
TBG01-3000-06.0-050	9/11/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.714	0.316	pCi/g		0.213
TBG01-3001-03.0-021	9/12/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1.05	0.409	pCi/g		0.255
TBG01-3002-02.0-025	9/11/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.889	0.366	pCi/g		0.226
TBG01-3003-05.0-016	9/12/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.95	0.412	pCi/g		0.287
TBG01-3070-03.0-021	9/12/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1.57	0.46	pCi/g		0.165
TBG02-3015-04.5-001	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.798	0.326	pCi/g		0.259
TBG02-3073-02.0-001	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.838	0.373	pCi/g		0.285
TBG04-3029-04.0-040	9/13/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.637	0.309	pCi/g		0.23
TBG05-3040-05.0-012	9/14/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	2.6	1.68	pCi/g		0.781
TBG05-3043-03.0-045	9/14/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.974	0.43	pCi/g		0.258
TBG06-3056-02.0-035	9/15/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.73	0.343	pCi/g		0.262
TBG06-3057-02.0-045	9/15/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1.12	0.459	pCi/g		0.253
TBG06-3058-01.0-070	9/15/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.767	0.34	pCi/g		0.229

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.96	0.416	pCi/g		0.29
TSG06-3059-085	9/15/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.855	0.393	pCi/g		0.293
TBG01-3004-02.0-000	9/13/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.664	0.331	pCi/g		0.252
TBG03-3018-01.0-011	9/14/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.917	0.377	pCi/g		0.267
TBG04-3025-01.0-010	9/13/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1	0.407	pCi/g		0.191
TBG04-3026-05.0-013	9/13/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.392	0.254	pCi/g		0.268
TBG04-3027-04.0-027	9/13/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1.01	0.371	pCi/g		0.199
TBG04-3028-06.0-030	9/13/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.709	0.332	pCi/g		0.215
TBG05-3041-10.0-014	9/14/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1.12	0.413	pCi/g		0.202
TBG05-3042-04.0-035	9/14/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.814	0.365	pCi/g		0.225
TBG05-3044-07.0-050	9/14/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.75	0.325	pCi/g		0.245
ACG01-3008-01.0-006	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	17.7	3.02	pCi/g		0.235
LDG01-3012-03.0-021	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.394	0.221	pCi/g		0.191
LDG01-3013-03.0-010	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.354	0.189	pCi/g		0.167
LDG01-3014-03.0-015	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.519	0.263	pCi/g		0.24
LDG04-3037-01.0-013	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	-0.00644	0.0129	pCi/g	U	0.142
TBG03-3071-01.0-011	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	24000	3890	pCi/g		163
LDG02-3017-03.0-001	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1.18	0.371	pCi/g		0.157
LDG02-9017-03.0-001	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.327	0.218	pCi/g		0.221
TBG03-3074-01.0-011	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	0.956	0.313	pCi/g		0.167
TBG02-2857-02.0	5/22/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	1.69	0.452	pCi/g		0.141
TBG02-2858-02.0	5/22/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	707	111	pCi/g		4.66
TBG02-3076-02.0-001	9/16/2002	Uranium-238, Alpha	DOE EML HASL 300-AL	2.16	0.573	pCi/g		0.147
TBG01-3000-06.0-050	9/11/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.56	0.646	pCi/g		0.407
TBG01-3001-03.0-021	9/12/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.53	0.566	pCi/g		0.319
TBG01-3002-02.0-025	9/11/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.673	1.13	pCi/g	U	0.718
TBG01-3003-05.0-016	9/12/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.795	0.744	pCi/g		0.651
TBG01-3070-03.0-021	9/12/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	2.94	3.59	pCi/g	U	3.97
TBG02-3015-04.5-001	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.56	0.853	pCi/g	U	0.956
TBG02-3073-02.0-001	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.877	1.05	pCi/g	U	1.18
TBG04-3029-04.0-040	9/13/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.809	0.645	pCi/g		0.492
TBG05-3040-05.0-012	9/14/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	3.08	0.859	pCi/g		0.411
TBG05-3043-03.0-045	9/14/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.71	1.45	pCi/g		0.853
TBG06-3056-02.0-035	9/15/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.16	1.13	pCi/g		0.871
TBG06-3057-02.0-045	9/15/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.31	0.688	pCi/g		0.512
TBG06-3058-01.0-070	9/15/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.8	0.959	pCi/g	U	0.844

Sample_No	Coll_date	Parameter	Method	Lab_Result	Uncertainty	Units	Lab_Qual	MDL
TSG06-3055-015	9/15/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	2	0.693	pCi/g		0.369
TSG06-3059-085	9/15/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.21	0.703	pCi/g		0.495
TBG01-3004-02.0-000	9/13/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.8	0.994	pCi/g		0.655
TBG03-3018-01.0-011	9/14/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.615	1.2	pCi/g	U	1.12
TBG04-3025-01.0-010	9/13/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.74	0.85	pCi/g		0.507
TBG04-3026-05.0-013	9/13/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	2.01	1.41	pCi/g		0.947
TBG04-3027-04.0-027	9/13/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.57	0.792	pCi/g		0.543
TBG04-3028-06.0-030	9/13/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.707	0.712	pCi/g	U	1.24
TBG05-3041-10.0-014	9/14/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.617	0.682	pCi/g		0.543
TBG05-3042-04.0-035	9/14/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.12	1.04	pCi/g		0.776
TBG05-3044-07.0-050	9/14/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.01	1.06	pCi/g		0.717
ACG01-3008-01.0-006	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0	54.5	pCi/g	UUI	35.8
LDG01-3012-03.0-021	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0	1.22	pCi/g	UUI	1.44
LDG01-3013-03.0-010	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0	0.162	pCi/g	UUI	0.255
LDG01-3014-03.0-015	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0	0.418	pCi/g	UUI	0.591
LDG04-3037-01.0-013	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0	0.981	pCi/g	UUI	1.16
TBG03-3071-01.0-011	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	19800	5500	pCi/g		4420
LDG02-3017-03.0-001	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	2.5	6.87	pCi/g	U	8.67
LDG02-9017-03.0-001	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1.5	2.19	pCi/g	U	3.03
TBG03-3074-01.0-011	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	25.2	19.5	pCi/g	U	26
TBG02-2857-02.0	5/22/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	2.05	0.957	pCi/g		0.741
TBG02-2858-02.0	5/22/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	1460	273	pCi/g		13.5
TBG02-3076-02.0-001	9/16/2002	Uranium-238, Gamma	DOE EML HASL 300-G/	0.339	9.21	pCi/g	U	9.87

Appendix G
Vicinity Property G IDW Sample Results

Vicinity Property G, Lewiston, New York
IDW Water Sample Results

Radiological Parameters
Method: EPA 903.1/EPA 900.0/DOE EML HASL 300
Sample ID: IDW-W-091702
Collection Date: 9/17/02
SDG: 67533

Parameter	Result	Uncertainty	Units	Lab Qualifier	MDL	CRDL
Actinium-228	10.7	12.4	PCI/L	U	17.1	20
Alpha	103	10.7	PCI/L		7.26	2
Antimony-125	-3.6	5.42	PCI/L	U	9.11	10
Beta	103	5.47	PCI/L		4.41	2
Cerium-144	0.851	16.2	PCI/L	U	27.7	50
Cesium-134	-2.2	2.2	PCI/L	U	3.46	5
Cesium-137	1.66	2.21	PCI/L	U	4.16	5
Cobalt-57	0.956	1.9	PCI/L	U	3.36	5
Cobalt-60	0.167	1.93	PCI/L	U	3.68	5
Europium-152	-1.05	5.93	PCI/L	U	10.5	20
Europium-154	-3.41	5.77	PCI/L	U	9.65	20
Europium-155	-8.54	8.06	PCI/L	U	13.1	20
Lead-212	7.72	5.09	PCI/L		7.13	15
Manganese-54	-1.19	1.83	PCI/L	U	3.15	5
Potassium-40	128	37.6	PCI/L		34.9	100
Promethium-144	0.301	1.86	PCI/L	U	3.36	5
Promethium-146	1.53	2.72	PCI/L	U	4.99	5
Radium-226	12.6	1.17	PCI/L		0.259	1
Radium-228	9.04	7.79	PCI/L	U	9.34	25
Ruthenium-106	3.64	19.3	PCI/L	U	34.7	50
Sodium-22	-1.04	2.05	PCI/L	U	3.5	5
Thorium-234	148	103	PCI/L	U	183	250
Yttrium-88	0.684	2.41	PCI/L	U	5.01	10
Zinc-65	-0.123	4.27	PCI/L	U	7.9	10

MDL = Method Dectection Limit
CRDL = Contract Required Dectection Limit

Analytical Results
RS-DRUM10-3385

RAD (pCi/g) and Total Uranium (ug/g)
EPA Method 900, 905, HASL 300, ASTM D5174, GL-RAD-A-041
Niagara Falls Storage Site (NFSS), Lewiston, New York

Sample No.	**RS-DRUM10-3385**	
Drum Tag Number	**See above**	
Lab ID	**83954019**	
Batch No.	**264600**	
Collected Date	**7/11/2003**	
Received Date	**7/12/2003**	
Analysis Date	**8/25/2003**	
SDG	**S-9-6**	
Parameter	**Results**	
Actinium-227	-0.0162	U
Alpha	0.123	U
Americium-241	0.0103	U
Beta	0.0383	U
Cesium-137	0.00599	U
Cobalt-60	0.0106	U
Plutonium-238	-0.0076	U
Plutonium-239/240	0	U
Protactinium-231	-0.0148	U
Radium-226	0.145	
Radium-228	0.0829	U
Strontium-90	-0.0636	U
Thorium-228-Alpha	-1.48	U
Thorium-228-Gamma	0	UUI
Thorium-230	1.11	U
Thorium-232	0.16	U
Total Activity	-3.92	U
Total Uranium	0.383	
Uranium-234	0.0286	U
Uranium-235-Gamma	0.0678	U
Uranium-235-Alpha	0.0505	U
Uranium-238-Alpha	0.0504	U
Uranium-238-Gamma	0	UUI

Analytical Results

RS-DRUM11-3386

RAD (pCi/g) and Total Uranium (ug/g)
EPA Method 900, 905, HASL 300, ASTM D5174, GL-RAD-A-041
Niagara Falls Storage Site (NFSS), Lewiston, New York

Sample No.	**RS-DRUM11-3386**
Drum Tag Number	**See above**
Lab ID	**83954020**
Batch No.	**264600**
Collected Date	**7/11/2003**
Received Date	**7/12/2003**
Analysis Date	**8/25/2003**
SDG	**S-9-6**
Parameter	**Results**
Actinium-227	0.0289 U
Alpha	0.504 U
Americium-241	0.00387 U
Beta	0.561 U
Cesium-137	0.00795 U
Cobalt-60	0.00787 U
Plutonium-238	-0.00718 U
Plutonium-239/240	-0.00718 U
Protactinium-231	0.268 U
Radium-226	0.019 U
Radium-228	0.0117 U
Strontium-90	0.115 U
Thorium-228-Alpha	0.416 U
Thorium-228-Gamma	0.00273 U
Thorium-230	0.573 U
Thorium-232	0.309 U
Total Activity	0.577 U
Total Uranium	0.0525 U
Uranium-234	0.0671 U
Uranium-235-Gamma	0.0299 U
Uranium-235-Alpha	0.058 U
Uranium-238-Alpha	0.132
Uranium-238-Gamma	0.386 U

Analytical Results

RS-DRUM12-3387

RAD (pCi/g) and Total Uranium (ug/g)
EPA Method 900, 905, HASL 300, ASTM D5174, GL-RAD-A-041
Niagara Falls Storage Site (NFSS), Lewiston, New York

Sample No.	**RS-DRUM12-3387**
Drum Tag Number	**See above**
Lab ID	**83996007**
Batch No.	**264601**
Collected Date	**7/11/2003**
Received Date	**7/15/2003**
Analysis Date	**8/23/2003**
SDG	**S-9-7**
Parameter	**Results**
Actinium-227	0.0672 U
Alpha	0.435 U
Americium-241	0.00456 U
Beta	1.76
Cesium-137	0.00284 U
Cobalt-60	0.00813 U
Plutonium-238	-0.0347 U
Plutonium-239/240	-0.0289 U
Protactinium-231	-0.487 U
Radium-226	0.0528
Radium-228	0.0404 U
Strontium-90	0.129 U
Thorium-228-Alpha	0.449 U
Thorium-228-Gamma	0.00298 U
Thorium-230	0.251 U
Thorium-232	-0.0448 U
Total Activity	3.11 U
Total Uranium	1.24
Uranium-234	0.702
Uranium-235-Gamma	0 UUI
Uranium-235-Alpha	0.0958
Uranium-238-Alpha	0.622
Uranium-238-Gamma	0.436

Analytical Results

RS-DRUM9-3384
RAD (pCi/g) and Total Uranium (ug/g)
EPA Method 900, 905, HASL 300, ASTM D5174, GL-RAD-A-041
Niagara Falls Storage Site (NFSS), Lewiston, New York

Sample No.	
Drum Tag Number	**See above**
Lab ID	**83954018**
Batch No.	**264600**
Collected Date	**7/11/2003**
Received Date	**7/12/2003**
Analysis Date	**8/25/2003**
SDG	**S-9-6**
Parameter	**Results**
Actinium-227	0.0222 U
Alpha	1.72
Americium-241	0.0105 U
Beta	1.09 U
Cesium-137	0.0324
Cobalt-60	-0.00423 U
Plutonium-238	0 U
Plutonium-239/240	0.017 U
Protactinium-231	0.0369 U
Radium-226	0.109
Radium-228	0.0389 U
Strontium-90	0.00959 U
Thorium-228-Alpha	0.3 U
Thorium-228-Gamma	0.0211 U
Thorium-230	0.243 U
Thorium-232	0.107 U
Total Activity	-1.85 U
Total Uranium	0.171
Uranium-234	-0.127 U
Uranium-235-Gamma	0 UUI
Uranium-235-Alpha	0.0131 U
Uranium-238-Alpha	0.153 U
Uranium-238-Gamma	0.0282 U